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SPECIAL REPORT

THE LATEST IN MASS STORAGE

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First editions will be scarce for PowerBooks, Quadras

Resellers scramble to stock new CPUs

By Andrew Gore

Las Vegas — At last week's Comdex/Fall '91 debut of Apple's new Macs, CEO John Sculley said Apple is ramping up production of its new models faster than for any new product introduction in its history.

Unfortunately, Macintosh resellers around the country report seeing little or no evidence of this sitting on their loading docks.

MacWEEK polled Apple dealers nationwide last week to see what configurations and quantities of Mac PowerBooks, Quadras and Classic IIs they had received and anticipated receiving. Their responses were similar: good quantities of Classic IIs, one PowerBook 100 for demonstration only and no Quadra 700s.

"All we've gotten are the Quadra 900 and the Classic II," said Jerry Hanlon, manager of BitzNBytes Computer Center Inc., a Mac-only reseller in Concord, N.H. "We've been told that we're going to get a PowerBook 100, but we haven't seen it yet."

According to Kevin Chapman, a sales consultant for Bottom Line Computers Inc. in Kansas City, Mo., the Bottom Line chain has received only one PowerBook 100 for each of its four stores. The company hasn't received any Quadras either, Chapman said, but the lack of PowerBooks is a bigger problem.

"Basically, we can sell all of the PowerBooks we can get," Chapman said. "About all we can do for now when a customer asks for the PowerBooks is take an order and tell them they might have to wait up to 90 days to see it."

See Availability, Page 86

Pen systems draw crowds at Comdex

By Raines Cohen

Las Vegas — While Apple took the smallest of first steps toward pen-based systems with the release of the PowerBooks last week, other developers were striding along. A number of companies, including IBM Corp., demonstrated pen-based systems and software at last week's Comdex/Fall '91 here.

▸ **GO Corp.,** the Foster City, Calif.-based developer of the PenPoint operating system (see MacWEEK, Jan. 29) featured several horizontal third-party applications at its booth here, and pointed to the growing number of hardware developers showing machines running PenPoint.

While the operating system is still months away from release, software vendors such as WordPerfect Corp., Pensoft, Slate Corp. and Ink Development Corp. showed pen-centric word processing and personal-information manager applications. Lotus Development Corp. announced a new division that will create PenPoint applications.

The software and operating system will be of little use until computers to run them are released. Several hardware developers showed PenPoint-

See Pen, Page 88

Coming soon?

KEVIN BERGER

Apple bobs in Comdex seas

By Raines Cohen

Las Vegas — While Apple made its long-awaited product launch at Comdex/Fall '91 here last week, the company ended up seeming just a small island in a sea of Intel-based systems.

Large crowds trooped through the Apple booth to see the 68040-based Quadras and do some hands-on testing of the PowerBooks. Most of the estimated 125,000 show goers, however, seemed more concerned with checking out the rising tide of Windows applications, new DOS notebooks with impressive color active-matrix displays and dozens of pen-based systems and applications.

IBM Corp. featured OS/2 2.0, complete with a brand-new user interface, at its immense booth, but it didn't attract the attention Windows did. Many companies, including several Macintosh developers, showed new Windows applications, and Microsoft blanketed the show with ads and giveaway plastic bags boasting about its graphical user interface's record sales under the slogan, "Count on it."

Notable sights around the show floors included:

▸ **Apple.** The company tried to position its new PowerBooks as communication tools, in an attempt to differentiate them from the dozens of other notebook models crowding the show floor.

"We have an unwavering commitment to fitting in and still standing out," said Apple CEO John Sculley. "The PowerBooks represent an important step toward what we at Apple like to call pervasive computing. The computer should be with you wherever you go."

HANK DELESPINASSE 1991

Apple gave Comdex/Fall '91 attendees last week a chance to get hands-on experience with its new PowerBooks.

▸ **PictureTel Corp.** showed its dial-up videoconferencing technology at both IBM's and Apple's booths. The system transmits full-color, full-motion images compressed at a 10,000-1 ratio, over relatively low-cost digital-switch phone links, then relies on third-party digitizing boards to display them on the computer screen.

IBM, which recently signed Peabody, Mass.-based PictureTel as an IBM Multimedia Business Partner, will market the technology for PCs beginning sometime next year. A PictureTel spokesman said his company currently has no agreement with Apple, but "it's obvious that we can run on the Mac, too." The Apple booth demo used a HyperCard stack to control the device.

▸ **Conner Peripherals Inc.** didn't have a booth but introduced a first in the microcomputer stor-

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Buyers give nod to new Macs

By Andrew Gore

Las Vegas — If the foot traffic at Apple's booth at last week's Comdex/Fall '91 was any indication, the Macintosh Classic II, Quadras and PowerBooks attracted a large share of convention goers' attention.

Not surprisingly, PowerBooks grabbed the spotlight as would-be test drivers crowded around the notebook kiosk sometimes four or five rows deep.

"I've always heard that the Mac was easier to use, but Apple never had a size machine that was good for me. Now they do," said Ron Morrison, Far East sales manager for Santa Monica, Calif.-based Interactive Systems Inc., a division of Eastman Kodak Co. Morrison, a frequent traveler to Asia who uses a DOS-based laptop, said he now would consider switching to a Mac model.

"We have a lot of executive staff who travel and need easy access to data on the desktop," said Neil Fox, a technology consultant at TRW Inc. in Cleveland. "The consistent user interface, ease of support and built-in networking make the PowerBooks an attractive choice."

See Reaction, Page 88

Claris puts spotlight on Hollywood

By Rochelle Garner

Santa Clara, Calif. — Claris Corp. stepped outside the Macintosh market last week, acquiring from IBM Corp. the marketing and distribution rights to a Windows-based presentation program.

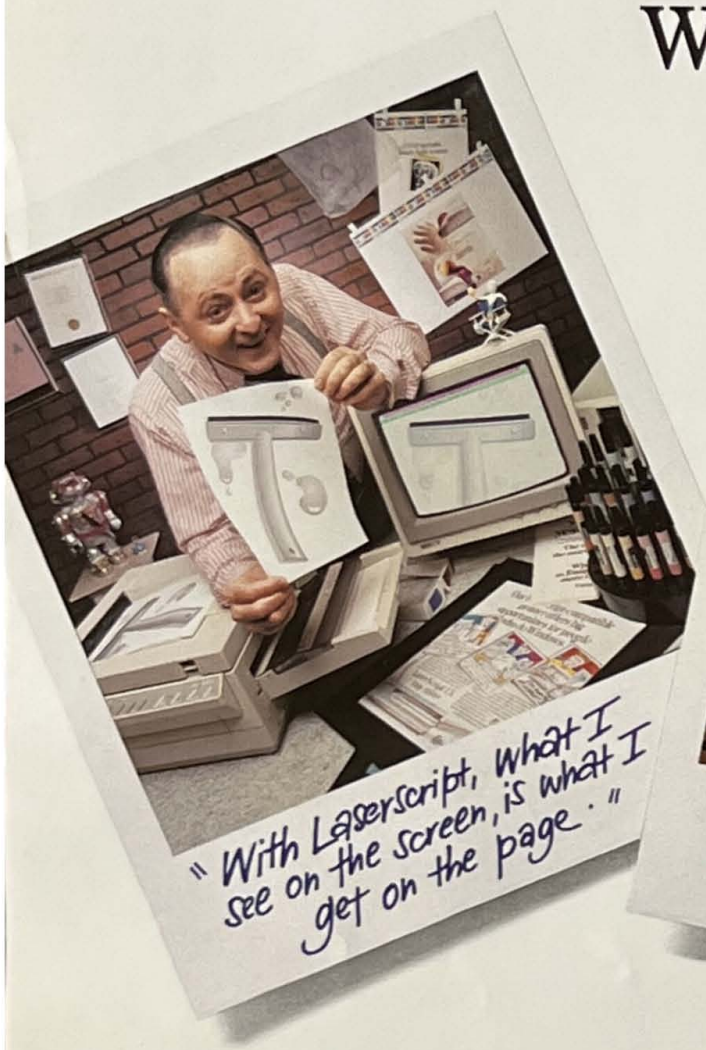
Hollywood, a graphics program with built-in drawing, charting and outlining capabilities developed by Publishing Solutions Inc. of Marlborough, Mass., had been sold by IBM's Desktop Software unit since May. IBM last month made it known it wanted to divest itself of all desktop applications.

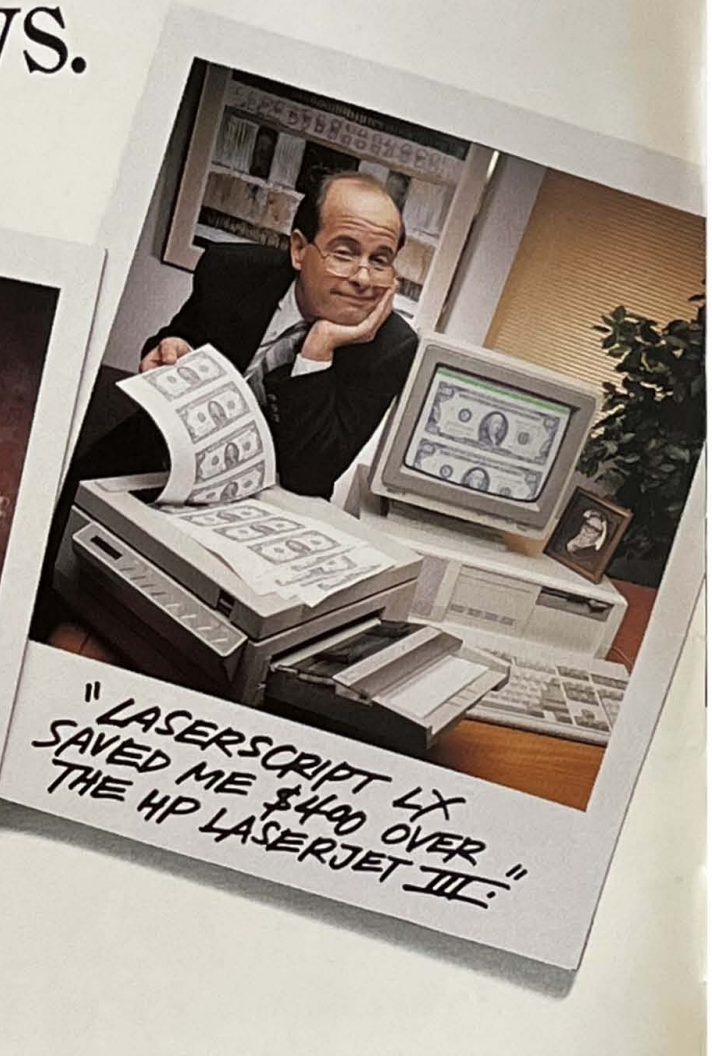
"We had no idea six weeks ago that IBM would shut down its desktop software unit," said Dan Eilers, Claris president and CEO. "When we heard three-and-a-half weeks

See Hollywood, Page 88

NEWSPAPER SECOND CLASS

Our PostScript-compatible printer offers big opportunities for people who do Windows.





At $1,995, the Abaton LaserScript LX is ideal for Windows users because its PostScript-compatible language allows you to print exactly what you see on the screen. Whether you're using a PC or a Mac — or both.

Since the PostScript language is device independent, it also works the same for a laser printer, phototypesetter, or slide-capture device. By proofing your work on the LaserScript LX before sending it to a service bureau, you could save the cost of the printer in corrections alone.

But we didn't stop there. The LaserScript LX is easy to access for both PC and Mac users — *at the same time.* It comes standard with four simultaneously active ports — one LocalTalk, two RS-232, and one Centronics — plus automatic emulation switching, so you can switch between PCL 4 and PostScript-compatible languages.

But the most attractive feature of the LaserScript LX, is that all this performance won't break the bank. In fact, it's priced $400* less than the HP LaserJet III (which doesn't offer PostScript-compatibility). Bottom line, Windows users get more for less with the LaserScript LX.

If you do Windows and want better looking results, call 800-472-EVER or (510) 498-1111 for the dealer nearest you.

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System 7-compatible A/UX 3.0 is set for Unix Expo preview

By Mitch Ratcliffe

New York — A/UX 3.0, the long-awaited System 7-compatible version of Apple's Unix operating system, will be introduced to the public at Unix Expo here this week.

Apple will show an early beta version of A/UX 3.0, which is not expected to ship until the first quarter of next year. At press time, many developers and beta testers had not received copies of the software.

A/UX allows users to run Macintosh software as a Unix task alongside Unix applications and utilities. But the current version of A/UX, 2.1, does not support Finder 7 and other features of the new Mac OS. Instead, a version of System 6 that is optimized to run above A/UX ships with A/UX 2.1.

Also due in A/UX 3.0 are fixes for serial, tape and SCSI drivers that will not run under the current version. Users who want to back up their hard drives to tape have complained that A/UX now officially supports only the Apple Tape Backup 40 tape drive, a product discontinued last year.

Apple also is reported to be working on a more reliable implementation of the Unix mail protocol, Unix-to-Unix Copy Protocol (UUCP), which has been buggy under A/UX 2.0 and 2.1, according to users.

A/UX 3.0 is the last major upgrade to Apple's Unix that will be based on AT&T Co.'s System V Release 2.2 Unix. Under the terms of the recently announced Apple-IBM alliance, the two companies will collaborate on the development of a new Unix environment built around a new version of AIX, IBM Corp.'s Unix, which in turn will be based on the Open Systems Foundation's OSF/1 kernel.

Generically called PowerOpen but likely to be marketed by Apple as A/UX 4.0, the future Unix will allow Apple, IBM and third-party workstations with RS/6000 and PowerPC processors to run Mac applications. It is not expected until 1993 at the earliest. □

Apple packing with recycled paper

By Nathalie Welch

Cupertino, Calif. — Stepping up its efforts to protect the environment, Apple last week announced a battery recycling and disposal program and began shipping products in brown boxes that increase its use of recycled paper.

▸ **Batteries.** The rechargeable batteries used in the Mac PowerBooks and Portables give out after about two years. But because they contain heavy metals such as lead or cadmium, they could cause damage to the environment and risks to public health if disposed of in landfills or incinerators.

Under the new program, customers can take used batteries to an authorized Apple service provider, who will arrange to recycle and safely dispose of them. Apple will absorb all related costs.

▸ **Boxes.** New Apple products already have begun arriving in brown, or "kraft," cardboard boxes, instead of the bleached "white-box" packaging Apple pioneered. The switch, Apple said, allows it to include significantly more recycled fiber — as much as 100 percent recycled post-consumer fiber — in box liners.

Apple said it is implementing the new environmental measures in response to consumers' concerns about the planet's health.

In an April announcement timed to coincide with Earth Day, the company said it would dramatically reduce the amount of chlorofluorocarbons (CFCs) used in its manufacturing (see MacWEEK, April 23). □

Converter powers Macs with car lighter

By Carolyn Said

Las Vegas — Giving new meaning to "mobile computing," Statpower Technologies Corp. has two appliances that let computers get power from cigarette-lighter plugs on cars, trucks, RVs or boats.

▸ **NOTEpower,** to ship in January for $79, converts 12-volt DC power into 115-volt, 60-Hz AC power. The inverter provides about 40 watts, enough for a notebook computer.

▸ **PROwatt 125,** available now for $129, also converts 12-volt DC power to 115-volt AC power, but it provides about 125 watts of power, enough to run a Mac SE or Plus. The PROwatt 125 sounds an alarm when the vehicle's battery starts to go low and automatically shuts down while there is still enough capacity left to start the engine.

Both devices plug into a cigarette lighter and offer a standard three-prong outlet into which users can plug power cords.

As well as powering computers, the inverters can run other electronic equipment, including TVs, VCRs, stereos, fax machines, printers, electric drills, fans, blenders and curling irons, Statpower said.

Statpower Technologies Corp. is at 7012 Lougheed Highway, Burnaby, British Columbia, V5A 1W2, Canada. Phone (604) 420-1585; fax (604) 420-1591. □

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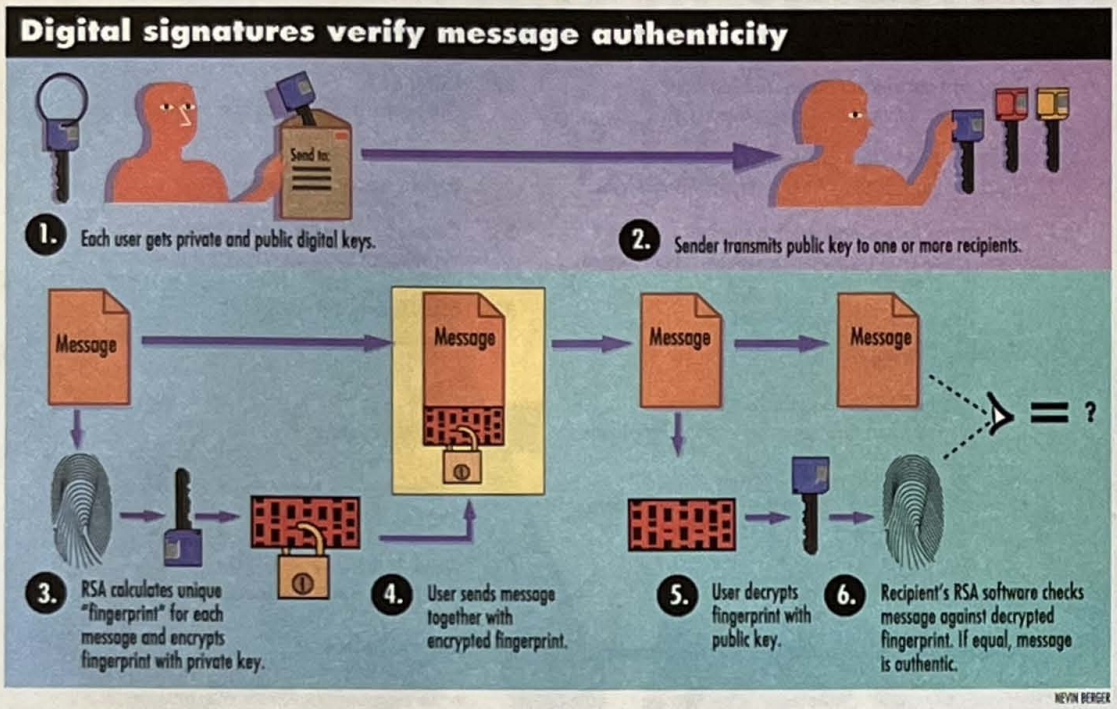

Digital signatures verify message authenticity
Send to:
1. Each user gets private and public digital keys.
2. Sender transmits public key to one or more recipients.
Message
Message
Message
Message
= ?
3. RSA calculates unique "fingerprint" for each message and encrypts fingerprint with private key.
4. User sends message together with encrypted fingerprint.
5. User decrypts fingerprint with public key.
6. Recipient's RSA software checks message against decrypted fingerprint. If equal, message is authentic.

KEVIN BERGER

E-mail authentication coming to Mac

OCE will provide digital signatures

By Mitch Ratcliffe

San Francisco — New system features due next year from Apple will let users protect messages and files they send electronically from unauthorized tampering.

A future version of System 7, according to Apple sources, will provide document-authentication capabilities based on digital-signature technology licensed from RSA Data Security Inc. of Redwood City, Calif.

The new feature will let recipients of electronic messages and files verify that the copy they received was in fact sent by the purported author and that the contents were not altered. The technology for the first time will make practical transmitting legally binding contracts.

The new feature is one of several services that make up the Open Collaboration Environment (OCE), a series of software modules and application programming interfaces Apple announced this month (see MacWEEK, Oct. 22). OCE also will provide for encryption of the contents of messages, but Apple will reportedly use RSA's technology only for authentication and adopt a different approach for data encryption. Specifics about the OCE product won't be announced until the first quarter of next year.

The RSA authentication system works by creating a pair of "keys," or numerical sequences, for each user who creates a document. The keys in turn are used to generate a unique digital "fingerprint" for each protected message or file.

In practice, the technology will likely take the form of dialog boxes asking users if they wish to add digital signatures to messages.

Under RSA's public-key method, users are given two keys: a private key they must keep secret and a freely distributable public key.

Because a public key distributed by one user can decrypt only fingerprints created with the same user's private key, recipients can prove what they receive was sent by the owner of the private key.

Public-key systems are more secure than one-key systems, such as the federal government's Digital Encryption Standard (DES). Senders of DES-encrypted files must distribute the key used in encrypting a file or message to every recipient, an approach that makes it possible for any recipient to forge a message in the name of original sender.

RSA's fingerprinting technology uses an algorithm that generates a unique number based on the contents of each message. The chances that two documents will produce identical numbers are lower than the odds of two people having identical fingerprints.

The fingerprint is then encrypted with the user's private key and attached to the message. Recipients use their own copy of the RSA algorithm to analyze the message. If the fingerprint the recipient produces is identical to the decrypted fingerprint, the message is authentic. □

Storage loads up Fast SCSI Cannon

By Henry Norr

Milpitas, Calif. — Storage Dimensions Inc. last week added a new weapon to its arsenal of SCSI acceleration products.

The Data Cannon II for NuBus, a card due in January for $999, will support Fast SCSI transfers at a sustained rate of up to 10 Mbytes per second, according to the company. Drives capable of Fast SCSI transfers, an option defined in the new SCSI-2 specification, have only recently appeared on the market, but more are expected by early next year.

Storage Dimensions released its first Data Cannon for NuBus in June, along with a comparable card for the Mac IIfx's processor direct slot, and both cards remain available at $859 (see MacWEEK, June 4). But while the IIfx card supports Fast SCSI, the original NuBus product does not; its maximum transfer rate is limited to 5 Mbytes per second.

The SCSI buses of the new Mac Quadras likewise support transfer rates of up to 5 Mbytes per second but don't offer the 10-Mbyte Fast SCSI capabilities of the new Cannon.

The Storage Dimensions card can accommodate up to seven internal or external devices; the Mac's native SCSI bus remains fully functional.

Unlike Apple's SCSI Manager, the Storage Dimensions card supports disconnect/reconnect, a SCSI feature that improves performance, particularly during operations such as background copying and backup.

The card can function as a bus master on the NuBus, offloading I/O management tasks from the Mac CPU. Using block-mode burst transfers, it can transfer data over the NuBus at up to 34 Mbytes per second, according to the company.

Storage Dimensions Inc. recently moved to 1656 McCarthy Blvd., Milpitas, Calif. 95035. Phone (408) 954-0710; fax (408) 954-0517. □

DEC enters midrange printer market with 13-ppm PostScript-clone laser

By Neil McManus

Maynard, Mass. — Digital Equipment Corp. last week unveiled a 13-page-per-minute PostScript-compatible laser printer.

The DEClaser 3250 will ship next month for $6,299. It has an Intel 8287 processor and comes with 43 Type 1 fonts and 7 Mbytes of RAM, expandable to 10.5 Mbytes.

The printer offers duplex (double-sided) printing and accepts a variety of paper sizes, including letter, legal and executive. A 1,500-sheet feeder is available as a $999 option.

Both the DEClaser 3200, shown above, and the DEClaser 3250 come with two 250-sheet paper trays.

The 300-dpi printer contains RS-423 serial and Centronics parallel ports. DEC also offers a $699 Novell Ethernet interface that allows connection to the Mac through DEC's Pathworks network software.

DEC is considering offering an AppleTalk interface for the printer, a company spokesman said. DEC last week introduced a $299 AppleTalk interface for its DEClaser 2250, an 8-ppm printer, available for $5,500.

DEC last week also introduced its similarly configured DEClaser 3200, a $4,799 printer that can be upgraded to PostScript-compatibility for $1,750.

The DEClaser 3250 uses a PostScript-compatible interpreter from Xerox Corp. and also offers HP PCL-4 and DEC-ANSI support.

DEC is at Maynard, Mass. 01754. Phone (508) 493-5111. □

HD driver updater gets update

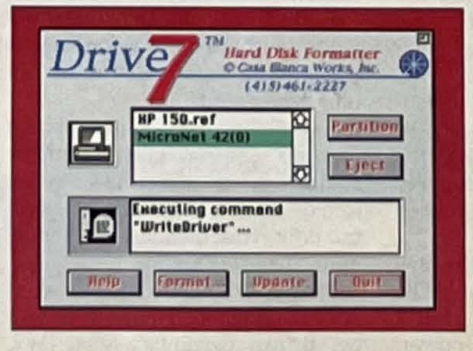
By Henry Norr

Greenbrae, Calif. — Casa Blanca Works Inc. this month released an updated version of Drive7, a disk utility designed to make hard drives from virtually any vendor compatible with System 7.

The $59.95 program lets users install drivers that are compatible with the new operating system, including its virtual memory feature, without reformatting their drives (see MacWEEK, June 18).

Enhancements in the free upgrade, called Version 1.7, include:

- **More drives.** Drive7 is now compatible with drives from Rodime Systems Inc. and Jasmine Technologies Inc. Casa Blanca said the program works with all Mac SCSI drives except early models from SuperMac Technology and a few smaller vendors.
- **New control panel.** A new control panel gives users more control over the mounting of SCSI devices. If a SCSI ID number is not checked, a drive at that location won't be mounted at boot-up. If an ID representing a removable-media device is checked, the drive will be mounted when a cartridge is inserted, even if none was present at boot-up.
- **Power-user options.** Drive7 by default installs standard parameters, but Version 1.7 also offers extended options for power users who want to tweak their settings.



Version 1.7 of Drive7 will let users install up-to-date, System 7-compatible drivers on drives from virtually any vendor.

"It's worked very well for people in our group, especially with SyQuests," said Mel Hoffman, vice president of the Lockheed Employees Apple User Group in Sunnyvale, Calif. "Other formatters offer more features, but the typical user doesn't need them, and those products cost three times as much."

Casa Blanca Works Inc. is at 148 Bon Air Center, Greenbrae, Calif. 94904. Phone (415) 461-2227; fax (415) 461-2249. □

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Vertical Refresh Rate — 75 Hz (same as Apple Portrait)

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Screen size (flat) — 15 inch diagonal
Resolution — 80 DPI WYSIWYG (same as Apple Portrait)
Vertical Refresh Rate — 75 Hz (same as Apple Portrait)

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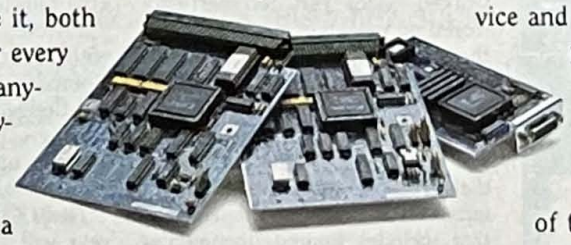

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MacVONK lends hand to travelers

HandiWorks suite based on RagTime

By Rochelle Garner

Las Vegas — MacVONK•USA West last week announced HandiWorks, an enhanced integrated package aimed specifically at traveling PowerBook users.

The package, introduced at Comdex/Fall '91 and due next month for $175, was developed by B&E GmbH of Germany. Like B&E's two earlier integrated programs, RagTime and RagTime Classic, HandiWorks provides word processing, spreadsheet, page-layout and graphics-import capabilities within a single document.

The new program features improved import and export capabilities, as well as an address database desk accessory. The application requires less than 1 Mbyte of memory, MacVONK said.

HandiWorks users start with a blank slate on which they draw a frame, then assign that frame a data type, such as word processor or spreadsheet. Users can mix and match elements and typefaces.

▸ **Word processing** capabilities include mail merge, hyphenation, kerning and leading adjustments, as well as spell checking with English and Spanish dictionaries.

Other dictionaries are available for $50 each for major European languages, including French, German, Italian, Finnish and Norwegian. The word processor can read files saved in other formats via Apple's XTND and DataViz's MacLink-Plus file filters.

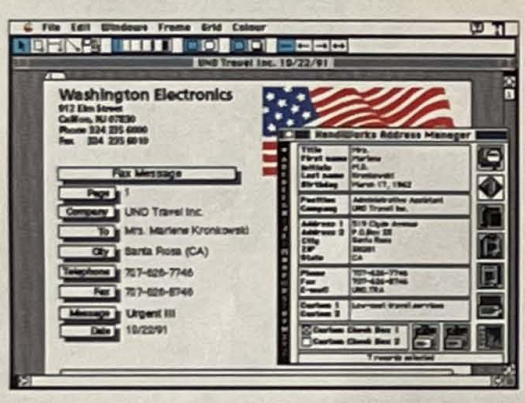
▸ **Spreadsheet** users can set up a 253-column-by-253-row matrix with a variety of type styles and sizes. Different spreadsheets can be hot-linked, and they can import and export data in tab-delimited text or SYLK formats.

▸ **Graphics** can be imported in PICT, Encapsulated PostScript, TIFF and bit-mapped formats, then cropped, scaled, resized and placed anywhere on the page. Layout features include spot-color separation, text wrap around objects and multiple columns. HandiWorks includes templates for fax forms, letterheads and invoices.

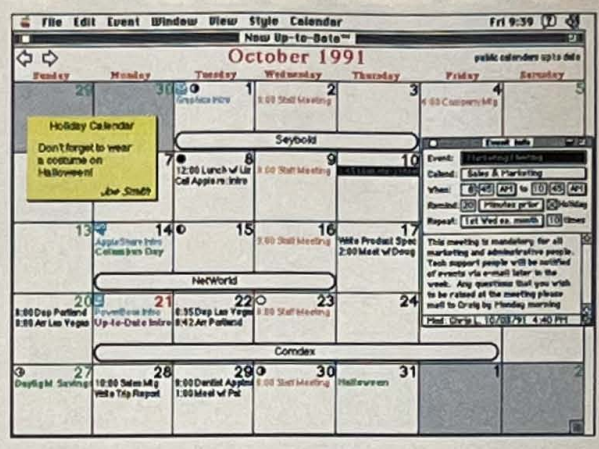
▸ **PhoneBook** is an address-book desk accessory that links to the word processing, spreadsheet and page-layout frames and can hold 5,000 records. It accepts tab-delimited files.

MacVONK•USA has merged with RagTime USA, the previous U.S. distributor of RagTime 3.0 and RagTime Classic. HandiWorks will replace RagTime Classic, the company said.

MacVONK•USA West is at 10601 S. De Anza Blvd., Suite 301, Cupertino, Calif. 95014. Phone (408) 973-7100; fax (408) 973-7104. □



Aimed especially at PowerBook users, HandiWorks integrates word processor, spreadsheet and graphics capabilities in one package.



Now Up-To-Date, a multi-user calendar and scheduling application, lets workgroup users exchange schedule information in the office or on the road. It supports multiple calendars, alarms and custom printing sizes.

Now scheduler lets workgroups keep their calendars Up-To-Date

Program allows remote updating

By Dartanyan Brown

Portland, Ore. — Now Software Inc. has a way for users on the road or in the office to keep their workgroup's shared calendar up-to-date.

Called Now Up-To-Date, the multi-user calendar and scheduling program lets users create and share calendar files over AppleTalk networks, either locally or via remote dial-up access, the company said.

To ship in December, Now Up-To-Date uses a proprietary technology that allows users to disseminate calendar information to other workgroup members at regular intervals. Shared calendars record the name of the last person to make changes to them.

All shared calendars reside on one Mac with the Now Up-To-Date extension installed. Any workstation on the network can be the server; there is no administration software.

While users can create private calendars, individual calendar events can be made public, allowing them to be shared with members of the workgroup.

Password protection allows either view-and-edit capability or view-only access.

Now Up-To-Date includes event information, such as title, date and duration. The program offers daily, weekly and monthly views; audio alarms for scheduled events; electronic Post-it notes; and printing options that support most popular appointment-book formats.

Text, style and graphic attributes can be customized for each calendar. Custom views including information from multiple calendars retain those attributes.

Now Up-To-Date will sell for $99 per single user. Five-user packs will be $399; 10-user packs will be $599.

Now Software Inc. is at 520 S.W. Harrison, Suite 435, Portland, Ore. 97201. Phone (503) 274-2800; fax (503) 274-0670. □

Object Database makes Mac link

By Matthew Rothenberg

Pittsburgh — Persistent Data Systems Inc. has added the Macintosh to the roster of programs supported by its object-oriented database server, the first such product for the Mac.

Called IDB Object Database 1.1, the program is structured around classes with inheritable attributes. According to Persistent, the object-oriented technology provides more flexibility and better performance than a traditional relational approach, particularly in applications that involve complex relationships between pieces of data.

Available now, IDB costs $2,500 for a single Mac developer license. The Object Database runs on an individual Mac and can be networked to any number of supported computers. Versions of the database also run under MS-DOS and Windows 3.0, and higher-priced versions are available for NeXTstep, SunOS, HP/Domain and HP/UX operating systems. Networked Macs can retrieve data stored on machines running any of these systems.

Version 1.1 of IDB is compatible with Version 5.0 of Symantec Corp.'s THINK C, the company said, but not with earlier versions of that development environment. An introductory version of the database that includes limited documentation and a sample application is available for $99.

Persistent Data Systems Inc. is at 75 W. Chapel Ridge Road, Pittsburgh, Pa. 15238. Phone (412) 963-1843; fax (412) 963-1846. □

IBM runs OS/2 application on Macs at its Comdex booth

By Raines Cohen

Las Vegas — A prototype Mac application made an appearance here at last week's Comdex/Fall '91 in an unconventional location: the IBM Corp. booth.

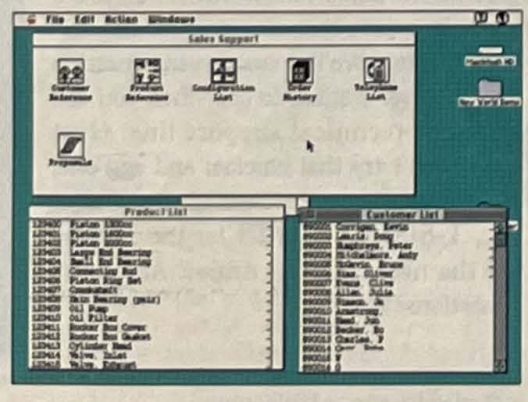
IBM showed New World, a prototype decision-analysis application running on the Macintosh. Apple engineers reportedly ported the program to the Mac last month. It was originally created by IBM for OS/2.

New World contains lists of customers and products that users drag to fill in order forms. It exchanges information with an OS/2-based database server on a peer-to-peer basis using Apple's SNA•ps communications software.

The systems communicated using the Token Ring 4/16 NB Card Apple announced earlier this month (see MacWEEK, Oct. 22). The card, due to ship in December, lets Macs hook into token-ring networks at 4 or 16 Mbits per second.

The project was meant to show off the ease of converting applications between IBM and Apple platforms with the connectivity tools resulting from the alliance. "It's a good use of the direct-manipulation metaphor," said Mark Farlin, connectivity evangelist at Apple.

IBM declined to say when, if ever, the program would be released as a product. It was one of more than a dozen technology demonstrations filling the IBM booth. □



New World, a prototype order-entry system created by IBM, acts as a peer to an OS/2 database server using Apple's SNA•ps software.

Paragon caters to PowerBook buyers with slimmed-down Nisus Compact

By Carolyn Said

Las Vegas — Those lightweight Mac PowerBooks will need similarly trim software, and Paragon Concepts Inc. is eager to oblige. The company announced last week Nisus Compact, a new version of its Nisus word processor designed especially for the PowerBooks.

Priced at $150, compared with Nisus' $395 price tag, Nisus Compact retains most of the full-fledged version's word processing capabilities but has fewer graphics and page-layout features, Paragon said.

Nisus Compact, due to ship this year, will address the special needs of PowerBook users in several ways, Paragon said. The program minimizes its access of the hard disk to conserve battery power. It will run on less than 300 Kbytes of RAM, compared with the 1 Mbyte recommended for Nisus, and weighs in at about 350 Kbytes compared with 800 Kbytes for its bigger sibling.

Nisus Compact will incorporate a new way to help keep files organized and accessible. When users create a file, they can check off several categories to which it belongs, which will simplify finding the file at a later date.

The program also incorporates a new "fuzzy" text-search feature that will allow users to find items with only partial details.

Nisus Compact files will be cross-compatible with Nisus 3.06 files. As in Nisus, the compact version will use a file format that allows any other application to read the text portion of files.

Paragon Concepts Inc. is at 990 Highland Drive, Suite 312, Solana Beach, Calif. 92075. Phone (619) 481-1477; fax (619) 481-6154. □

There's Only Been One Time In Your Life When Message Translation Was Easier.

The classic translation tool for the Macintosh is now the easiest to use. And packed with more translators and new features than ever before.

Introducing MacLink/Plus 6.0. The most advanced version of the world's leading data translation software. Redesigned around one basic concept. Simplicity.

More extensive than ever, MacLink/Plus version 6.0 includes new translators for Ami Professional, RTF, Excel, MS Works database, FrameMaker, Professional Write and AppleWorks word processing and spreadsheet formats.

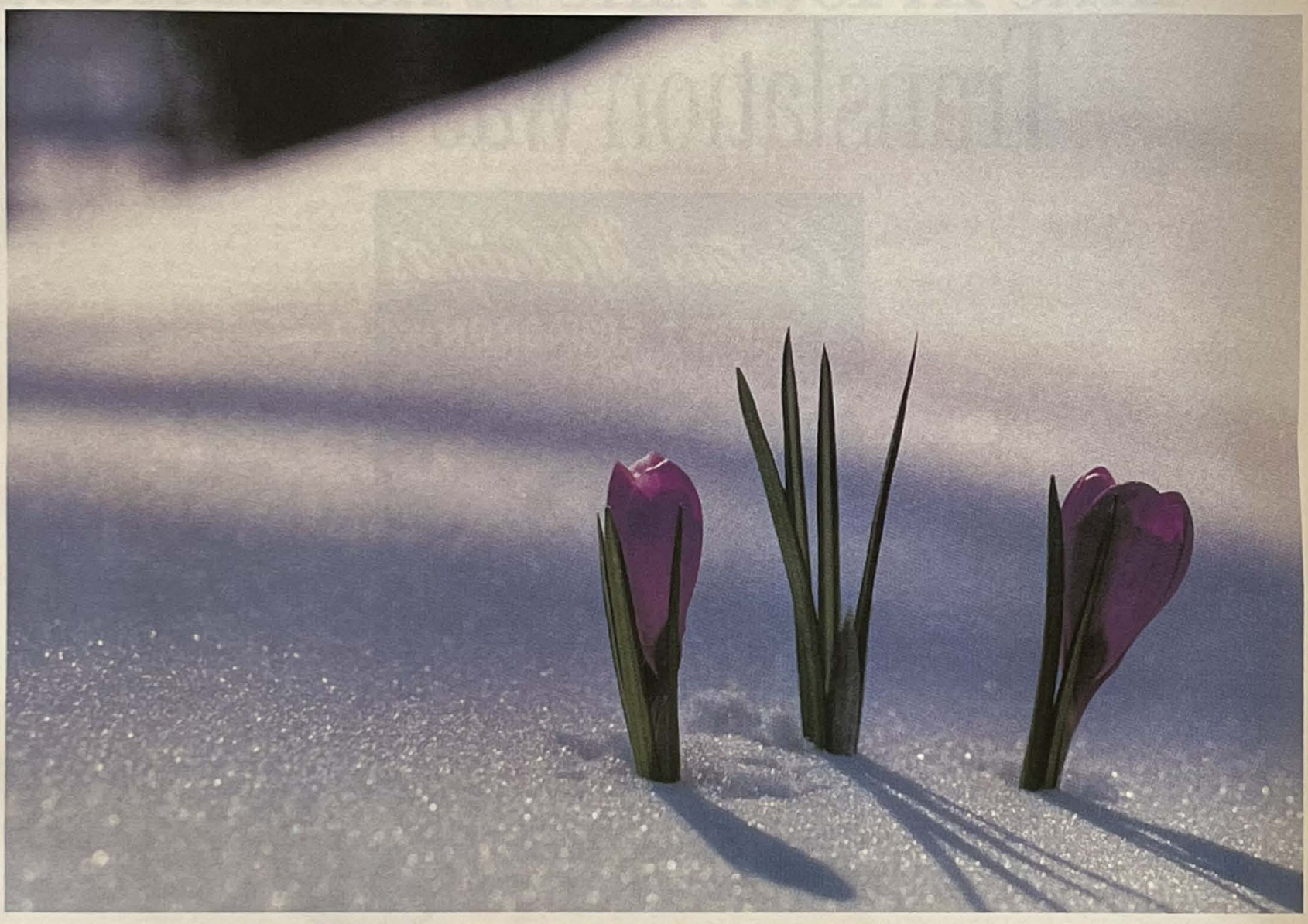
Best of all, MacLink/Plus sets a new standard in ease of use. With automatic file recognition, you can translate files without ever needing to know what type of file you're translating. File translation is now automatic with simple "drag to translate" and "point-and-click" commands. And MS-DOS disks show up right on the desktop with DOS Mounter software.

For the simplest answer to all your file translation needs, get MacLink/Plus 6.0. And see for yourself how we've put a new twist on a classic idea. For information on dealers and upgrades, call DataViz today at (800) 733-0030.

DATAVIZ™
THE DATABRIDGE SPECIALISTS

All product names are trademarks or registered trademarks of their respective holders. DataViz, Inc., 55 Corporate Drive, Trumbull, CT 06611 (203) 268-0030 "Captain Midnight® is a registered trademark of Sandoz Nutrition Corporation."

Experience tells you to count on certain things.



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For the Macintosh, HP offers the added benefits of a built-in LocalTalk interface and a unique printer resource that

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gives your users on-screen access to such LaserJet features as dual-bin and two-sided printing.† Imagine. Legendary LaserJet quality, along with HP reliability and service, for prices ranging from only $2,495 to $6,995.* For more information and the name of your nearest authorized HP dealer, call **1-800-752-0900, Ext. 2751.**‡ Why take a chance on anything else?

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HEWLETT PACKARD

Maple branches out into 3-D world

More functions, help bolster math tool

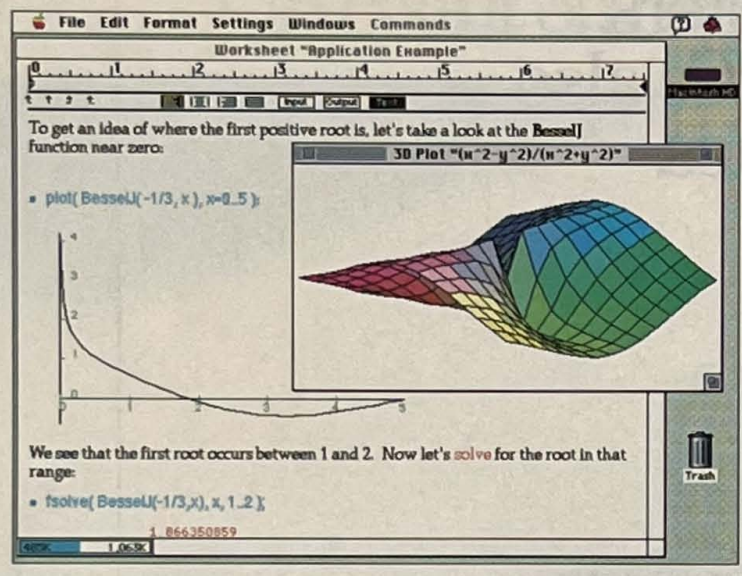
By Raines Cohen

Waterloo, Ontario — Waterloo Maple Software last month shipped a new Mac version of Maple, its interactive computer algebra system. The program was developed by the Symbolic Computation Group in the computer science department at the University of Waterloo here.

Maple performs symbolic and numeric computation, mathematical programming and visualization. Maple V for the Macintosh now features 3-D graphics, user control over styles in worksheets and additional mathematical functions.

The program, used widely in academia, consists of a small engine customized for each CPU, along with a platform-independent kernel and a 7-Mbyte multiplatform library with more than 2,000 user-modifiable functions. It is available for dozens of personal computer, workstation, mainframe and supercomputer platforms.

Version V for the Mac can run in 2 Mbytes of RAM, bringing library functions in from disk only as needed. It does not require a math coprocessor.


File Edit Format Settings Windows Commands
Worksheet "Application Example"
To get an idea of where the first positive root is, let's take a look at the BesselJ function near zero:
plot(BesselJ(-1/3, x), x=0..5);
3D Plot "(x^2-y^2)/(x^2+y^2)"
We see that the first root occurs between 1 and 2. Now let's solve for the root in that range:
fsolve(BesselJ(-1/3,x), x, 1..2);
1.866350859
Trash

Maple V, the latest version of the multiplatform mathematical package, adds expanded on-line help, more mathematical functions and 3-D graphics.

New features include:

▸ **3-D graphics.** Although previous versions had 2-D plotting facilities, the new version now handles 3-D plotting functions, displaying graphics in wireframe or as rendered surfaces, and supporting hidden-line removal, color by position, free rotation, and othogonal projection.

▸ **Expanded on-line help.** Users now can navigate between help topics, instead of having to invoke the help system separately for each query.

▸ **Mathematical functions.** Version V now offers 700 new functions in symbolic and numeric calculations. Some of the functions are specialized for engineers.

A new facility for defining and using mathematical operators also is included.

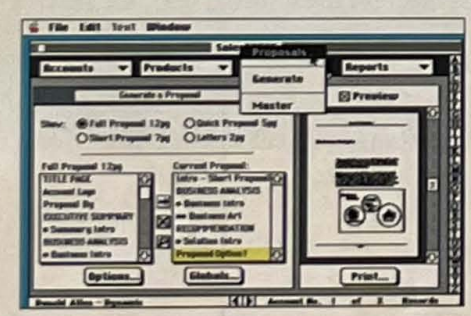
Maple V for Macintosh sells for $450 per computer; volume discounts are available. For other platforms, the price ranges from $695 for 386-based machines to $8,495 for Cray XMP supercomputers. Site-licensing programs, including a year of free updates and technical support, are available.

Waterloo Maple Software is at 160 Columbia St. W., Waterloo, Ontario N2L 3L3, Canada. Phone (519) 747-2373; fax (519) 747-5284. □

Build proposals with SalesFORCE

By Dartanyan Brown

Roswell, Ga. — GBA Inc. last month began shipping a combination sales-information database and desktop publishing application designed to speed the preparation of sales proposals.



Users can easily generate and format sales proposals and add sales-related calculations with SalesFORCE — The Proposal Generator, new from GBA.

Called SalesFORCE — The Proposal Generator, the $495 program merges client and inventory information into proposal forms designed within the program's desktop publishing manager. The publishing manager, which the company said can handle any length document, treats all graphics and text blocks as objects that can be placed anywhere within a document. Text or graphics also can be anchored to specific locations in a document.

"The way it calculates page breaks is very nice," said Jim Armstrong, president of Cupertino, Calif.-based Platinum Platter Multi-Media. "It automatically figures where page breaks should go to eliminate widows and orphans."

The program's built-in database manages client account and inventory information, which can be sorted via pre- or user-defined categories.

Users also can add an unlimited number of items to the database.

A built-in spreadsheet provides limited functions for calculating discounts, margins and sales price. Users can specify spreadsheet columns to be printed. Data can be imported and exported in tab- or comma-delimited format.

GBA also offers SalesFORCE Generator, a $165 subset of the program for users needing only to generate sales proposals.

The program performs many of the same features as the other version, except for the ability to modify master proposal or product databases.

GBA Inc. is at 603 Oakstone Way, Suite 200, Roswell, Ga. 30075. Phone (404) 518-1014; fax (404) 365-9861. □

FrameReader navigates copy

San Jose, Calif. — Frame Technology Corp. this month shipped FrameReader, a new utility designed to facilitate distribution of documents created with the company's FrameMaker publishing software.

The $125 FrameReader, which requires only 600 Kbytes of RAM, lets users read, print and navigate FrameMaker documents without having to own a copy of the $795 application.

FrameReader offers hypertext navigation, the ability to view graphics imported by reference (hot-linked) to FrameMaker documents, zoom levels from 25 percent to 400 percent, and support for files created on the Mac or Unix platforms.

Frame Technology Corp. is at 1010 Rincon Circle, San Jose, Calif. 95131. Phone (408) 433-3311; fax (408) 433-1928. □

New tools let developers combine compression with Apple Installer

'Action atoms' unpack files automatically

By Raines Cohen and Henry Norr

Puyallup, Wash. — Buyers of several recent business applications can credit Glen Canyon Software Inc. and MindVision Software for cutting down on the amount of floppy-shuffling it takes to install their new programs.

Deneba Software used GCS Compressor, Glen Canyon's new compression tool kit, to reduce the number of floppies required for Canvas 3.0 from nine to four, while Symantec Corp. turned to MindVision's Installer Vise for MORE 3.1 and GreatWorks.

▸ **Glen Canyon's GCS Compressor** squeezes and combines application files and adds decompression functions to Apple's Installer.

The compression utility takes its time, trying more than 10 different methods to achieve maximum compression of the source files, which the company said is more than 50 percent space savings in most cases.

Developers can license Glen Canyon's 12-Kbyte decompression "action atom," or executable code resource, to add into their installer scripts. The software can rapidly determine whether the destination disk has room for the decompressed contents and unpack the archives needed for installation. Files are verified to detect errors when both packing and unpacking.

Glen Canyon said pricing is set on a case-by-case basis, but that a permanent license for GCS Compressor, including a year's free, 24-hour-a-day support, typically costs $2,500. The compression engine is written in C++ and is portable to other platforms, according to the company.

Glen Canyon also offers custom installer-script development services for commercial and in-house developers. The company wrote InstallEdit, an installation-script editor that will be published later this year by Aladdin Systems Inc. of Watsonville, Calif. The program will allow managers to create scripts that install a complete suite of approved applications, extensions, utilities and system software with one click on the part of the user.

▸ **MindVision's Vise** package includes Application Vise, a set of tools that allow developers to set up their programs to decompress into memory when launched but remain compressed on disk, and Installer Vise, a set of tools that lets developers combine several files into a single compressed storage file that is automatically decompressed upon installation. MindVision provides an action atom and sample scripts for Apple's Installer, but Vise also can be used with custom installers or self-extracting archives.

The company said its decompression technology is already the fastest on the market, with speeds ranging from more than 150 Kbytes per second on a Mac Plus to more that 2,100 Kbytes per second on a Mac IIfx. Version 1.1 of the Vise package, due by year-end, will offer compression 16 percent tighter than any other program now on the market, according to Steve Kiene, president of MindVision and author of the software.

With their new products, Glen Canyon and MindVision are taking on the established leaders in the compression field. Aladdin Systems Inc., publisher of the StuffIt series, offers its own installer as well as action atoms for the Apple utility; Salient Software Inc., publisher of DiskDoubler, and Bill Goodman, author of the shareware standard Compact Pro, also market installation tools.

Glen Canyon Software Inc. is at 10530 149th St. Court E., Puyallup, Wash. 98374. Phone (206) 845-8299 or (800) 477-6947; fax (206) 841-7694.

MindVision Software is at 1721 Benton St., Lincoln, Neb. 68521. Phone (402) 477-3269; fax (402) 477-7684. □

OAG data service lists air schedules

By Nathalie Welch

Oak Brook, Ill. — Spending more time in airports than in your office? Mac users on the wing can keep tabs on their own destiny with OAG FlightDisk, a subscription service to flight information from Official Airline Guides (OAG) Inc.

Beginning Dec. 1, OAG — which maintains the world's largest database of flight schedules — will offer information on disk on all flights in North America.

Designed for use with the new PowerBooks as well as desktop machines, OAG FlightDisk will include information on ground transportation and local airline reservation phone numbers as well as frequent flyer and frequent lodger programs.

The navigating screen uses color icons, multiple windows and point-and-click selection. The built-in Notepad lets users jot down and print out itineraries.

A year's subscription, including monthly updates, is $199; the cost is $99 to current subscribers of the company's OAG Desktop Flight Guides.

Official Airline Guides is at 2000 Clearwater Drive, Oak Brook, Ill. 60521. Phone (708) 574-6000 or (800) 342-5624. □

Loop's PictureBook gets a sequel

Scrapbook substitute adds TIFF support

By Henry Norr

Menlo Park, Calif. — Loop Software this month began shipping PictureBook+, a new scrapbook replacement and art-management package.

Shipped in both desk accessory and application form, the $129 program retains the look and feel of Loop's earlier entry in the field, a $69.95 desk accessory called PictureBook. Like the original it replaces, the new program lets users open multiple scrapbook files, transfer clippings between them by clicking and dragging, select named items from a list, and crop and resize images.

With its thumbnail mode, PictureBook+ stores compressed views of text as well as graphics in up to 256 colors.

PictureBook+ also provides a variety of additional features, including:

- **A thumbnail mode.** The program stores compressed thumbnails of each text and graphics clipping. Thumbnails of color images can have up to 256 colors.
- **A search function.** Users can locate files by name, keyword or any phrase appearing in notes attached to a scrapbook entry, which can now total up to 30,000 characters.
- **Sorting.** Entries within a scrapbook can be sorted by name, size, date or type, or dragged into a custom order.
- **TIFF support.** PictureBook+ can read and write MS-DOS and Mac TIFF files, with or without compression, in black and white, gray scale, and indexed or direct color. The program also can import text, PICT, MacPaint, Encapsulated PostScript, Scrapbook and SmartScrap files, and export in text, PICT and EPS format, with creator types for the export files defined by the user.
- **Graphics editing.** Users can resize and crop images in up to 32-bit color. A palette of graphics tools includes lasso and marquee tools for bit maps, and cookie-cutter (irregular selection) and cropper tools for object-oriented images.
- **Improved text support.** Users can now view and print styled as well as plain text and make changes with a built-in text editor, which includes a search-and-replace function.
- **Print-to-disk driver.** LoopWriter, the company's Chooser-selectable print-to-disk driver, lets any application print fully formatted pages into PictureBook+ books.

PictureBook+ is free to users who bought PictureBook after July 1; it is $30 for those who bought the software earlier.

Loop Software is at P.O. Box 1249, Menlo Park, Calif. 94026. Phone (415) 326-4803; fax (415) 326-1834. □

PickTure gives a thumbnail view

By Carolyn Said

Torrance, Calif. — PickTure, a control panel from Right Answers Inc., puts a new spin on the Mac graphical interface.

With PickTure's "visual file selector," users can see thumbnail views of graphics files in the Open dialog box of any application. Users can scroll through the display and double-click on a miniature to open a file.

Available now for $89.95, the program automatically creates thumbnails of existing files when it is installed, and automatically creates and updates thumbnails each time a document is saved.

PickTure also adds several other capabilities to Open dialogs, including buttons that let users rename and delete files on the fly and radio buttons for navigating directly to recently accessed folders.

The control panel runs under both systems 6 and 7.

Right Answers Inc. is at P.O. Box 3699, Torrance, Calif. 90510. Phone (818) 840-8021; fax (818) 567-7363. □

PickTure, a control panel, puts thumbnail views of documents in the Open dialog box of any application. Users can double-click on the thumbnails to open a file.

Mainstay, Olduvai update Clipboard enhancers

By Henry Norr

Agoura Hills, Calif. — Two utilities that combine Clipboard enhancements with Scrapbook capabilities are now available in System 7-compatible versions.

- **ClickPaste 2.1.** Publisher Mainstay said it has completely rewritten its $99.95 ClickPaste utility to add new features, improved performance, and compatibility with all leading applications as well as Apple's current operating system.

The program lets users retrieve stored text and graphics from a pop-up menu called up by a user-defined hot key. Enhancements include automatic updating of pop-up menus, display of styled text in pop-up preview balloons, built-in file-management buttons, the ability to play sound scraps before pasting them, and better memory management so preview balloons can always be displayed.

Upgrades, including a new manual, are $20, but free to customers who bought ClickPaste after May 1. Shipping and handling cost $5.

- **MultiClip 2.1.7.** Version 2.1.7 of Olduvai Corp.'s MultiClip provides full compatibility with System 7, the company said. The $129 system extension, which gives users multiple clipboards as well as scrapbooks, now offers balloon help and lets users copy, paste and play sounds.

Upgrades are $29 through Dec. 31 and $49 thereafter. A copy of MultiArt, a $79 product containing 200 sounds and clip-art images, is included with the upgrade.

Mainstay is at 5311-B Derry Ave., Agoura Hills, Calif. 91301. Phone (818) 991-6540; fax (818) 991-4587.

Olduvai Corp. is at 7520 Red Road, South Miami, Fla. 33143. Phone (305) 665-4665 or (800) 548-5151; fax (305) 665-0671. □

New Bézier bubblejet printer puts 360 dpi on large-format pages

PS-compatible laser gets price reduction

By Shawn Tomlinson and Rochelle Garner

San Jose, Calif. — Bézier Systems Inc. this month began shipping its large-format bubblejet printer and recently lowered the price of its PostScript-compatible laser printer.

- **Bubblejet.** Bézier's new BP3670 bubblejet printer, priced at $1,995, can print up to 17 inches wide by 22 inches long, the company said.

When outputting to letter-size paper, it can print 360 dpi at 2 pages per minute or 180 dpi at up to 6 ppm.

The QuickDraw printer ships with a tractor feed for fanfold plain paper up to 16 inches wide, as well as trays for A-, B- and C-size paper. It connects to the Mac's SCSI port.

- **PostScript-compatible laser.** The company last month cut $400 off the price of its BP4040 PostScript-compatible laser printer.

Now $1,495, the BP4040 uses the same AMD 29000 RISC (reduced instruction set computing) chip, Microsoft TrueImage PostScript-compatible interpreter and Canon LX engine as The Printer Works Corp.'s LX-29000 printer (see story, this page).

The laser printer produces 300-dpi output at 4 ppm, and ships with 2 Mbytes of RAM, 35 TrueType fonts and a 250-sheet letter-size paper tray.

The BP4040 handles envelopes, labels, transparencies, letter-, legal- and A4-size paper.

It switches automatically among its AppleTalk, serial and parallel printer ports.

Bézier Systems Inc. is at 1190 Saratoga Ave., San Jose, Calif. 95129. Phone (408) 345-0345; fax (408) 345-0350. □

New printer offers RISC at low cost

By Shawn Tomlinson

Hayward, Calif. — The Printer Works Corp. last month began shipping its LX-29000, a PostScript-compatible laser printer the company sells directly for $1,295.

Based on the 16-MHz 29000 RISC (reduced instruction set computing) chip from Advanced Micro Devices Inc. with Microsoft Corp.'s TrueImage PostScript-compatible interpreter and a Canon LX printer engine, the LX-29000 can print 4 pages per minute at 300-dpi resolution. It ships with 35 TrueType fonts and 2 Mbytes of RAM.

The LX-29000 can print envelopes, labels, transparencies and 75 sheets of letter-, legal- or A4-size paper. Options include a 250-sheet letter-size tray with feeder mechanism, a 250-sheet legal paper tray and a 25-envelope tray for $149.95, $59.95 and $64.95, respectively. The printer automatically switches among its AppleTalk, serial and Centronics parallel interfaces.

The Printer Works expects in December to ship a memory board with 2 Mbytes of RAM, expandable to 4 Mbytes. The company said it expects to price the board configured with 2 Mbytes of memory at $300.

The Printer Works Corp. is at 3481 Arden Road, Hayward, Calif. 94545. Phone (510) 887-6116 or (800) 225-6116; fax (510) 786-0589. □

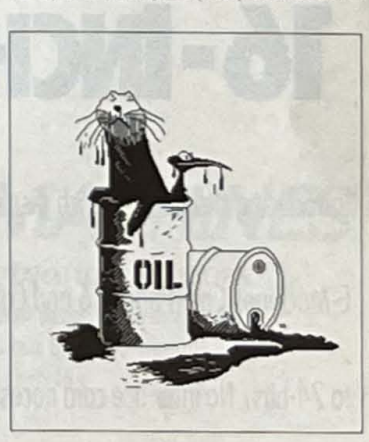
T/Maker adds more cartoons

Mountain View, Calif. — T/Maker Co., which has staked out the clip-art arena for much of its marketing focus, this month released ClickArt Newsletter Cartoons, the 14th of its ClickArt series.

Priced at $49.95 for the Mac and $69.95 for IBM PCs and compatibles, ClickArt Newsletter Cartoons is a collection of 100 bit-mapped cartoons drawn by syndicated cartoonist Phil Frank. The cartoons, which all have a whimsical bent, illustrate a variety of topics, including ecology, money, leisure, health and sports.

Users open the cartoons with the included ClipOut desk accessory, then save images to the Clipboard. Cartoons also can be opened directly from a variety of page-layout, word processing or graphics applications, such as Aldus Corp.'s PageMaker, T/Maker's WriteNow, Microsoft Word or MacPaint.

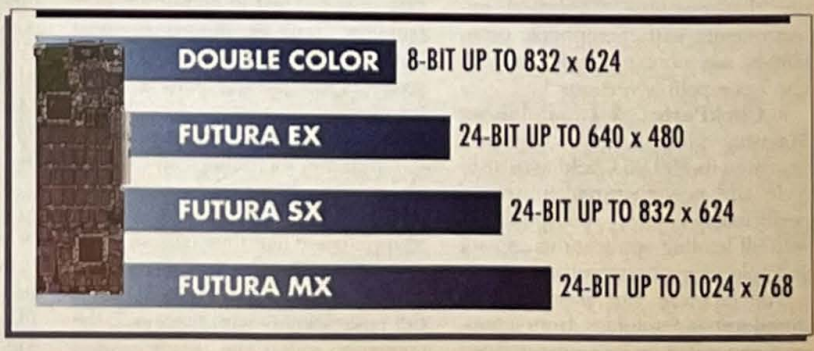
T/Maker Co. is at 1390 Villa St., Mountain View, Calif. 94041. Phone (415) 962-0195; fax (415) 962-0201. □



T/Maker's package offers cartoons that present a whimsical slant to even serious subjects, such as the cartoon above on ecology.

16-INCH DISPLAYS FOR THE MAC QUADRA...

Introducing the only 16-inch displays compatible with the new Macintosh Quadra 700 and 900, E-Machines ColorPage E16 and ColorPage T16. Just plug-n-play for affordable full-page color up to 24-bits. No interface card necessary! Need more room to work with large spreadsheets, desktop publishing layouts or multimedia applications? E-Machines 16-inch color solutions are just right for



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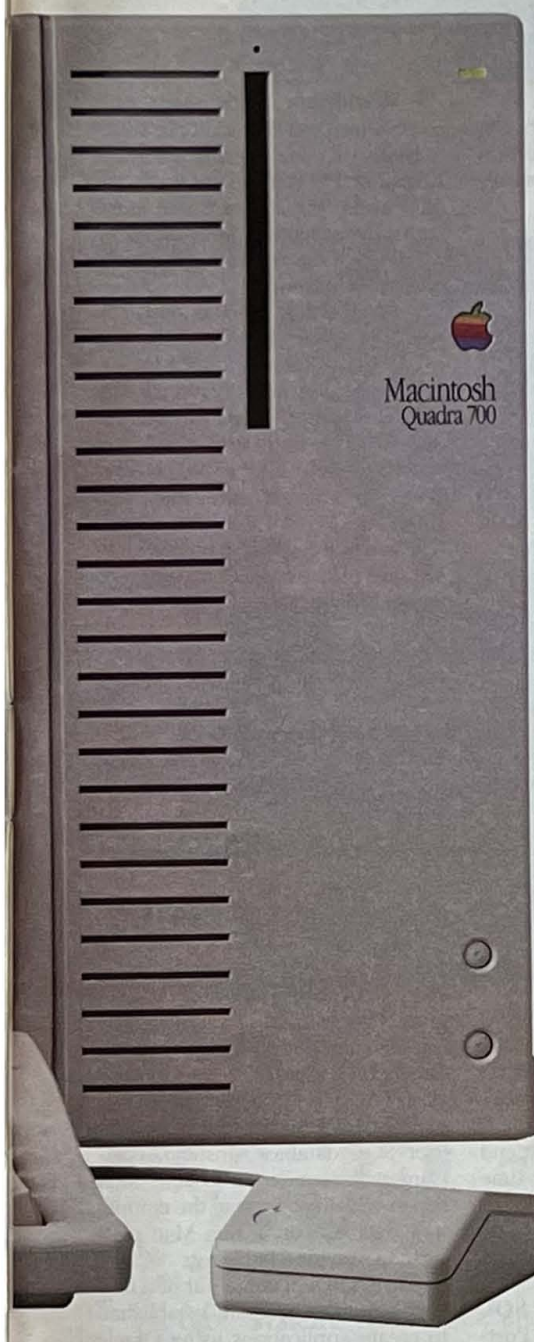

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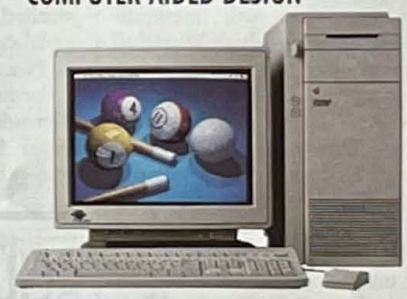

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Gateways

- Networking
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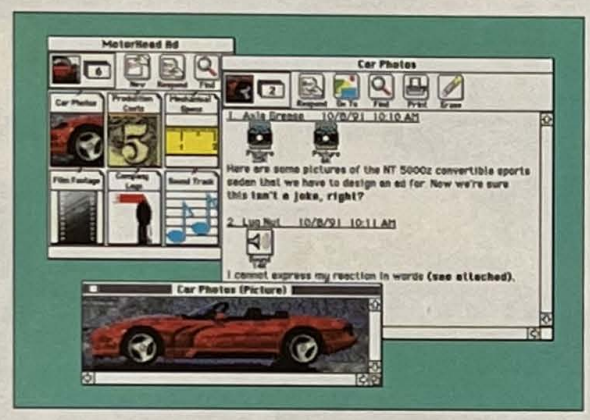
Pacer gives AppleTalk users a forum

BBS-style program promotes discussion

By Mitch Ratcliffe

La Jolla, Calif. — Betting that a familiar interface will facilitate workgroup productivity, Pacer Software Inc. last week shipped PacerForum, a conferencing environment that resembles CompuServe Information Manager and America Online but runs over AppleTalk LANs.


MotorHead Bd
Car Photos
Here are some pictures of the NT 5000z convertible sports sedan that we have to design an ad for. Now we're sure this isn't a joke, right?
I cannot express my reaction in words (see attached).
Car Photos (Picture)

Pacer Software's PacerForum lets users share ideas on an AppleTalk-compatible bulletin board. Text, color graphics or sound files can be attached to user postings.

Available now, PacerForum is bulletin board software that allows users on an AppleTalk network to share data in an icon-based work space. Users must run a desk accessory on their Macs, while the PacerForum Server loads as an extension and runs as a background process on the server.

As in an on-line forum, PacerForum provides topics organized under icons, topic threading, and the ability to attach text, color-graphic and sound files to user comments. PacerForum sells for $549 for five users; a 25-user pack lists for $1,995.

"With PacerForum, we can share messages quickly — it's a form of computing that promotes a constant flow of ideas," said David Mash, assistant dean of curriculum at the Boston-based Berkeley College of Music. The school uses PacerForum in a faculty Macintosh laboratory. "We have found we don't tend to share files as much with E-mail as with PacerForum."

When running under System 7, an attached file will launch in its creator application when users double-click the PacerForum icon, Mash said.

For instance, a user can upload a Microsoft Word document or a sound file to receive comments from other members of the forum. When logging on, users are notified that new messages are waiting for them. Comments added to the original posting appear in boldface under the same topic icon to indicate they have not been read. They are displayed in the order they were made, to lend structure to on-line conversations.

The PacerForum environment can be customized to notify users of new messages while they work in other applications. An administrator application is included for managing conference activity, passwords and groups.

"We use it to distribute software upgrades, to track configuration changes and for maintaining a map of the LAN," said Joe Dallatore, a consultant with Computer Methods Corp. of Maralton, N.J., who has installed PacerForum at a major Eastern banking company.

Pacer Software Inc. is at 1900 W. Park Drive, Suite 280, Westborough, Mass. 01581. Phone (508) 898-3300; fax (508) 366-1356. □

Kodak to change NetWare's image

By Margie Wylie

Las Vegas — Picturing a graphical future for NetWare applications, Novell Inc. last week announced a new partnership with Eastman Kodak Co. that will integrate document-imaging capabilities into its network operating system.

Working with Kodak's Rochester, N.Y.-based Desktop Document Imaging Group, Novell, based in Provo, Utah, will let developers integrate Kodak's document-imaging capabilities into applications that run in the NetWare environment.

For many endeavors that rely on paper documentation, such as government applications, document imaging cuts the paper-handling time. Users simply scan papers into an application that allows them to process the paper electronically, while keeping the original on file.

For its end of the deal, Novell will modify NetWare's filing system to handle graphical file types and help create a standard set of application programming interfaces for accessing imaging services. Kodak will create NetWare loadable modules (NLMs) to capture, store, manage and move images over a NetWare network.

Neither company would comment on when the capabilities will be available, what form they will take or how much they will cost. Since NetWare allows developers to plug their own services into the network operating system through NLMs, Kodak could sell the services separate from NetWare. □

ACIUS ships DAL extension for 4D

By Raines Cohen

Las Vegas — ACIUS Inc. last week offered developers an improved set of tools for connecting 4th Dimension applications to host SQL databases.

4D D.A.L., an extension to the 4th Dimension database, shipped last week, the company announced at Comdex/Fall '91. The new extension was introduced earlier this year and was scheduled to ship in April (see MacWEEK, April 2). It allows 4D databases to tap into host SQL systems using Apple's Data Access Language (DAL).

Priced at $395 for each Mac, the extension supports several SQL databases, including Sybase, Oracle, Ingres, Informix, Tandem Corp.'s Nonstop SQL and IBM Corp.'s DB2.

4D D.A.L. replaces 4D Connectivity Kit, which supported the basic command set of CL/1, the precursor to DAL. ACIUS will not provide an upgrade path to DAL for owners of the Connectivity Kit.

To facilitate integration of host data with local 4D data, 4D D.A.L. includes several high-level application programming interfaces. For instance, a developer can define contexts or collections of bindings between host data files and local data objects. Included routines automatically transfer data between 4D and the host system.

In addition, the extension enables database systems created in 4D to validate static data at the local level, avoiding the network overhead and delay of a host query.

ACIUS Inc. is at 10351 Bubb Road, Cupertino, Calif. 95014. Phone (408) 252-4444; fax (408) 252-0831. □

InterCon's offerings to link Macs to worldwide Internet services

By Mitch Ratcliffe

Herndon, Va. — Mac users can become electronic globe-trotters on a shoestring with InterCon Systems Inc.'s new Internet services.

The company this week announced low-cost access to the Internet, a worldwide system of TCP/IP networks, with a Mac interface for users in more than 40 cities.

Due in November, the $19.95 WorldLink Basic and $49.95 WorldLink Advanced will provide different levels of Internet services. In addition to the software, users will pay a flat fee, $19.95 a month, for unlimited 2,400-baud access via Performance System International Inc.'s Internet portals.

InterCon will market both a Mac and a Windows version of WorldLink, which was developed after an agreement between the company and PSI (see MacWEEK, Oct. 8).

WorldLink's Mac interface will be based on InterCon's TCP/Connect II, an application that allows users to send and receive files and electronic mail on TCP/IP networks.

- **WorldLink Basic** offers only batch E-mail and file transfer features.

Basic will allow users to assemble E-mail or file transfer routines off-line, which the software will automatically execute when the user connects to the Internet. Users will have on-line control.

- **WorldLink Advanced,** in contrast, offers real-time access, which allows users to read and post to the 900-plus news groups on the Internet; compose, send or receive mail while on-line; and log onto and browse remote FTP (File Transfer Protocol) archives, available with InterCon's WorldLink Advanced.

Users will have to pay any long-distance phone charges necessary to reach PSI's points of entry to the Internet. InterCon said no packet-switched or public data network services for access to the PSI network are available.

InterCon Systems Inc. is at 950 Herndon Parkway, Suite 390, Herndon, Va. 22070. Phone (703) 709-9890; fax (703) 709-9896. □

Macs to get Oracle Mail access

By Margie Wylie

Dallas — Oracle Corp. used this month's NetWorld '91 show here to preview a link that will let Macintoshes participate in an Oracle Mail network.

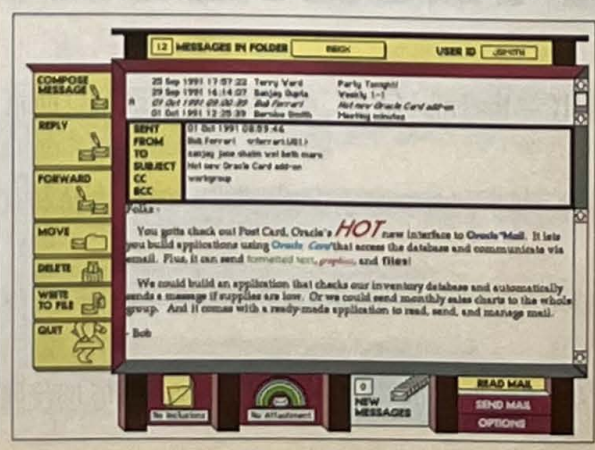
PostCard, due early next year and still unpriced, will for the first time allow Mac users to exchange electronic mail with Oracle Mail users on other platforms, such as Unix and VMS, and across an enterprise.

Using Oracle's proprietary SQL connection, called SQL*Net, PostCard will let Macs send and receive E-mail through a network of the company's databases. Mac users and in-house developers will be able to create custom interfaces to the mail program using Oracle's HyperCard-like front-ending program, Oracle Card.

The company will not port its Oracle Mail server to either its Oracle for Mac stand-alone database or its Oracle Server for Mac, its multiuser SQL database. Instead, PostCard will require an Oracle Mail server running on top of the company's database on a non-Mac platform to provide Mac access.

PostCard will come out of a new division of the company established to create applications using Oracle Card technology and to develop pen-based systems.

Oracle Corp. is at 500 Oracle Parkway, Redwood Shores, Calif. 94065. Phone (415) 506-7000 or (800) 345-3267; fax (415) 506-6001. □



PostCard will give Mac users access to Oracle Card, Oracle's HyperCard-like development environment that serves as a front end to Oracle Mail, shown here.

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Extended card puts LaserJets on net

By Mitch Ratcliffe

Boise, Idaho — Mac users now can put their Hewlett-Packard LaserJet-series printer anywhere they want on an EtherTalk or Novell NetWare network using Extended Systems Inc.'s interface card, which recently began shipping.

Available now, the $695 EtherFlex network-to-printer interface card fits in the I/O slot of the LaserJet series II, IID, III and IIID printers to provide both 10BASE T and thin Ethernet connectivity. Users will be able to configure the card to either EtherTalk or NetWare's IPX (Internetwork Packet Exchange) network protocols by setting a hardware switch. User-installable protocol modules for other types of networks are under development, Extended Systems said.

HP offers an AppleTalk option for its popular LaserJet printers. But Extended's EtherFlex lets users place the printer directly on an Ethernet LAN.

Mac users who want to print to EtherFlex connected to the IBM PC or compatible NetWare server must run Novell's NetWare for Macintosh.

Extended Systems Inc. is at 6123 N. Meeker Ave., Boise, Idaho 83704. Phone (406) 587-7575; fax (406) 587-9170. □

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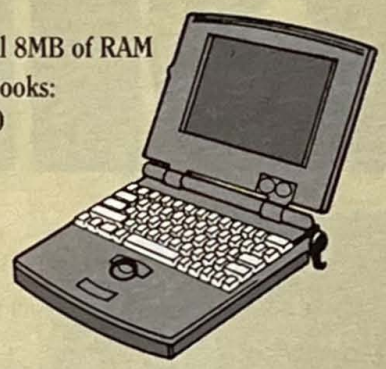

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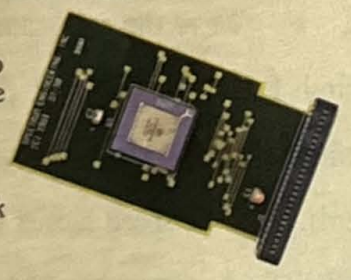

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EtherShare update offers improved print support

By Mitch Ratcliffe

Cupertino, Calif. — Helios USA this month announced an interim upgrade to its EtherShare Mac-to-Unix software, which allows a Unix workstation or server to act as an AppleShare server.

Available now, EtherShare 2.0.4 provides print-sharing support for any Unix or AppleTalk PostScript printer on an Ethernet network. Previously, the software supported only AppleTalk-compatible printers.

Support for AppleShare 3.0 protocols also is included in the upgrade. Helios said it has optimized EtherShare to run 20 percent faster than earlier versions did under Unix.

EtherShare 2.0.4 for a Unix workstation is priced at $4,995. A server-based version sells for $5,950. Upgrades are available without extra charge to users who bought a maintenance contract.

Helios USA is at 10601 S. DeAnza Blvd., Suite 302, Cupertino, Calif. 95014. Phone (408) 973-7111; fax (408) 973-7114. □

New dial-in program coming from cc:Mail

By Nathalie Welch

Las Vegas — Spurred by the new PowerBook releases, Lotus Development Corp. and its electronic-mail subsidiary, cc:Mail, last week introduced a new program that will let Macintosh users dial into LAN-based cc:Mail systems.

Called cc:Mail Macintosh Remote, the program was announced here at Comdex/Fall '91 and is scheduled to ship during the first quarter of next year.

The application will let remote Macintosh desktop or portable users dial in and exchange text, files, graphics and faxes with LAN-based cc:Mail users, whether they are running DOS, Windows or OS/2. File transfers with users on other platforms are accomplished through cc:Mail gateways.

Features include the ability to create messages off-line, delay transmission of E-mail and "wake up" a remote machine.

Pricing has not yet been determined.

cc:Mail is at 2141 Landings Drive, Mountain View, Calif. 94043. Phone (415) 961-8800; fax (415) 961-8400. □

Alliance for multivendor nets

Provo, Utah — More than a dozen additional vendors recently joined Apple, IBM Corp. and Novell Inc. in an organization designed to eliminate the support nightmares that often surround multivendor networks.

The Technical Support Alliance announced this month the participation of Adaptec Inc., AST Research Inc., cisco Systems Inc., Dell Computer Inc., Digital Equipment Corp., Lotus Development Corp., Gupta Technologies Inc., NEC Technologies Inc., Standard Microsystems Corp., Storage Dimensions Inc., SynOptics Communication Inc., Unisys Corp. and Zenith Data Systems.

Alliance members, who cross-train their technical-support staffs, agree to support the products of other alliance members or cooperate in solving a problem to prevent finger pointing. □

We might as well tell you right now. The new GatorBox® CS doesn't just compete with other AppleTalk-Ethernet gateways.

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Even the housing is designed to take the heat off network managers. Thanks to its vertical air flow construction, GatorBox CS runs at substantially cooler operating temperatures.

GatorBox CS vs FastPath 5

Feature	GatorBox CS	FastPath 5
AppleTalk-Ethernet gateway	■	■
TCP/IP, MacTCP and IPTalk support	■	■
DECnet Phase IV support	■	■
AppleTalk Phase 1 and 2 support	■	■
Thin, thick or 10BaseT Ethernet	■	■
Configuration, monitoring and upgrades from anywhere on network	■	■
SNMP and atalkad support	■	■
Seed, non-seed and soft-seed routing	■	
AppleTalk tunneling over IP backbone	■	
Remote gateway status via *telnet*	■	
Out-of-band hardware diagnostics	■	
Diagnostics written to UNIX *syslog* file	■	
2 MB memory	■	
Optional AppleShare-NFS file sharing	■	
Optional UNIX-AppleTalk printing	■	
Overnight replacement policy	■	
Hardware warranty	2 years	1 year
Suggested retail price	$2,795	$2,799

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You want to talk versatility? How about GatorBox application software. Like GatorShare™ and GatorPrint™ so you can take advantage of Mac-to-Unix file sharing and printing regardless of which GatorBox you're using.

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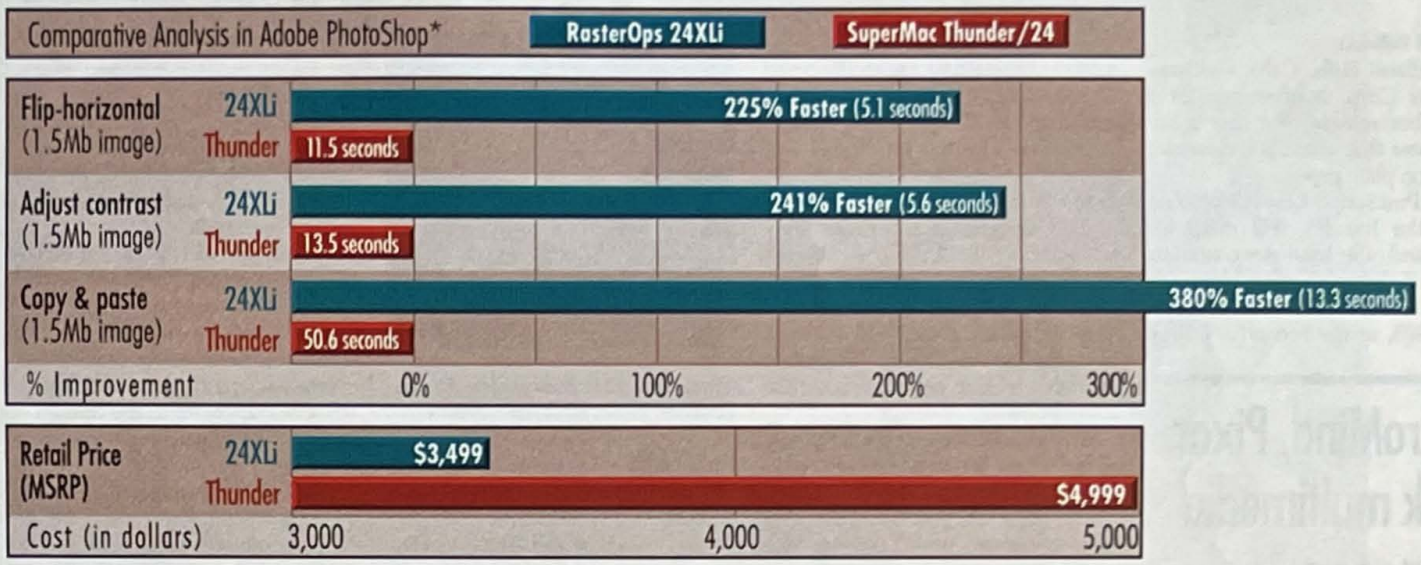

*Tests were conducted running PhotoShop 2.0 under system 6.05. Tests run on Macintosh IIfx under identical conditions. Complete test results available upon request.

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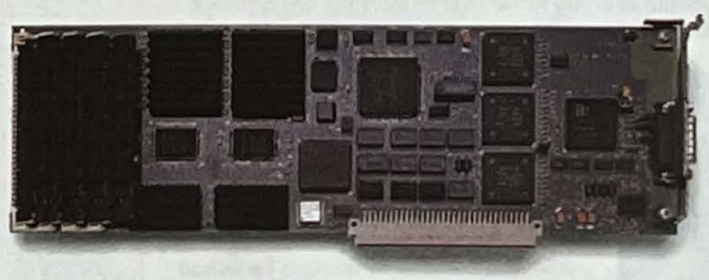

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Solid-ink printer to Jolt color market

By Neil McManus

Woodland Hills, Calif. — Dataproducts Corp. is preparing for a December release of a new solid-ink printer that offers 300-dpi color output on plain paper.

The PostScript Level 2 printer, called the Jolt PS, will retail for $6,995 and offer legal-size output. It will join Tektronix Inc.'s tabloid-size Phaser III, unveiled this summer for $9,995, as the second solid-ink Level 2 printer to hit the Mac market (see MacWEEK, June 18).

Solid-ink printers use a wax-based ink, similar to a crayon, that is melted by a heated print head and jetted onto the page, where it quickly resolidifies.

The Dataproducts printer uses a 24-MHz Weitek 8220 RISC (reduced instruction set computing) processor to produce a full-color page of text and graphics in less than a minute, said Donna Wheatley, market development manager at Dataproducts.

The Jolt PS comes standard with a 200-sheet letter-size paper tray; 35 Type 1 fonts; and 6 Mbytes of RAM, expandable to 10 Mbytes. It also contains AppleTalk, RS-232 serial, Centronics parallel and SCSI interfaces.

Industry analysts say solid ink offers several advantages over existing color printing technologies such as liquid inkjet and thermal transfer, including plain-paper output and lower consumables costs.

Dataproducts last month started shipping the Jolt, a $4,995 non-PostScript solid-ink color printer aimed at the IBM PC and compatible market.

Richard Carbajal of Carbajal Edwards Designs in Van Nuys, Calif., said he relies on color printers for proofing brochures and illustrations for clients such as ABC, The Disney Channel and Eagle Snacks. He uses the Jolt for letter-size output and a Seiko ColorPoint PS thermal-wax transfer printer for tabloid-size output.

Dataproducts' Jolt PS produces a full-color page of text and graphics in less than one minute.

"The colors I get from the two printers are very close — I can't find much of a difference — so it makes a lot more sense to print out proofs on the Jolt for a couple of cents a sheet than on the Seiko for about a dollar a sheet," Carbajal said.

Dataproducts Corp. is at 6200 Canoga Ave., Woodland Hills, Calif. 91367. Phone (818) 887-8000; fax (818) 716-6486. □

MacroMind, Pixar think multimedia

By Matthew Rothenberg

San Francisco — MacroMind Inc. and Pixar are rolling out CD-ROMs offering clip art and software for Mac multimedia producers.

▸ **MacroMind** is pressing ahead with its Mac version of ClipMedia Volume I: Business and Technology. To ship by the beginning of December for $395, the disc will feature a variety of graphics, animations, video sequences and sound clips related to business and the media.

The CD-ROM will include more

See ClipMedia, Page 22

Candela palette of programs aids CMYK work and color calibration

By Carolyn Said

Minneapolis — Candela Ltd. recently shipped a quartet of color-transformation software products aimed at high-end users and systems integrators.

▸ **Candela434,** priced at $5,000, offers "round-trip" conversion from CMYK (cyan, magenta, yellow, black) to RGB (red, green, blue) and back again. It is designed for desktop publishers and artists who scan in images in CMYK, manipulate them on screen in RGB, and then output them as process separations in CMYK.

Candela434 would not be needed by users who exclusively use the new CMYK editing modes of image-manipulation programs such as Adobe Photoshop 2.0 and Letraset's ColorStudio 1.5, Candela said.

▸ **4-SEPS,** priced at $2,500, converts RGB images to CMYK data for color separation. Also targeted at high-end desktop publishers, 4-SEPS provides controls over variables such as GCR (gray component replacement), UCR (undercolor removal), dot gain and black point.

Candela434 and 4-SEPS offer conversions five times more accurate than those of competing products, said John Grimald, Candela president.

▸ **Sys-Cal,** priced at $5,000, is an end-to-end system that provides calibration between a color-film scanner and a color-film recorder.

▸ **Print-Cal,** priced at $2,500, lets users accurately profile output characteristics of color printers and build custom look-up tables of color values.

Candela Ltd. is at 9206 12th Ave. S., Minneapolis, Minn. 55425. Phone (612) 885-9077; fax (612) 888-6916. □

AP begins sending full-page XPress documents to dailies

By Stuart Silverstone

New York — The Associated Press last week began distributing complete newspaper pages created in QuarkXPress to its more than 1,700 cooperative-member dailies.

Portions of AP's text wire, news photographs and information graphics are combined on the pages using the innovative layouts of Robert Lockwood, one of this country's top publication designers.

"The pages offer us the opportunity to present something comprehensively as well as comprehensible," said Bill Ahearn, AP executive editor, vice president and initiator of the project. "We see telling a news story as more than just words."

With their focus on reporting local and regional stories, small and

See AP, Page 22

Special report Newspaper's masterplan
The Heart A user's guide
Take heart: New hope for health
New gadgets help clear out clogged arteries, but exercise and diet still count
Problems of the heart
Getting started: What you can do to improve your health
Test your heartiness

The Associated Press sent this page, designed by Robert Lockwood, to newspapers on its GraphicsNet network. Since the page arrives as a QuarkXPress file, newspapers can reproduce it in its entirety or use any of the text, photo or graphic elements separately.

SCREEN TEST

Illustrator finds grace under pressure in Oasis

San Leandro, Calif. — Chelsea Sammel prefers to be called an illustrator, not a computer illustrator, and looking at her free-lance artwork, it's hard to believe she uses the Mac almost exclusively. Producing art that looks so much like paint on canvas required a lot of experimentation with pressure-sensitive tablets and software that takes advantage of them.

To create "Anne's Friend," shown here, Sammel worked on her Mac II with a 32-bit Truevision NuVista video capture and display card and a combination of tools she uses often: CalComp Inc.'s Drawing Board II digitizing tablet and Time Arts Inc.'s Oasis, a paint program designed for use with pressure-sensitive devices. Sammel said she prefers CalComp's tablet to other input devices because she can set its 18 macro buttons to control repetitive functions (such as Undo, Cut and Paste) and switch brushes.

"My goal is to have something like a digital sketchboard," Sammel said. "The further I can get away from the keyboard, the better." Sammel began by sketching a simple black-on-white outline with a low-density brush. Then she created a color palette, choosing browns, sage and reds for highlights, and added color with customized Oasis brushes set for a fairly heavy density that resembled oil paints.

Sammel varied the pressure of the pen on the tablet and used several brushes to achieve a hand-drawn look. "The tablet allows you to see the variations in the human hand," she said. "It's not a real perfect look."

Sammel said digitizing tablets and other new input devices have allowed artists working on computers to "return to the way they used to work," while providing advantages not found in traditional media. For instance, she usually sends a SyQuest disk directly to her clients instead of outputting the art herself. "The ease of moving information [with the computer] is greater, and it's much faster to make changes," Sammel said. — By Allison de Laveaga

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TruScan tower raises color quality

By Matthew Rothenberg

Herndon, Va. — Truvel has shaped up its 24-bit-color scanner act with a new 900-dpi model featuring more color features and a lower price tag than its predecessor.

The TruScan 3D Color Scanner, to ship next month for $9,995, replaces the company's $13,000 TZ-3BWC scanner.

The new model includes color filters made with higher-quality tinted glass for better color definition and a new lens that provides sharper, clearer scans, the company said.

Like other members of the TruScan line, the TruScan 3D features a tower that contains the scanner's CCD (charge-coupled device), lights and camera-style lens that can be adjusted to offer optical resolutions from 75 to 900 dpi.

The tower passes over the scanner bed, capturing 24-bit-color or eight-bit gray-scale images from subjects up to 12 by 17 inches in area and 2 inches high. This design permits users to scan small 3-D objects.

The TruScan 3D can scan a 4-by-5-inch image in 24-bit color at 300 dpi in one minute and 20 seconds, the company said.

The TruScan 3D also includes Truvel's Zebra board for processing line art. By adjusting the threshold on a scan to distinguish fine gray-scale transitions in the image, the Zebra board can make finer distinctions than are normally possible at that resolution.

The scanner ships with Adobe Photoshop LE, the stripped-down version of Adobe Systems Inc.'s image-editing program, and supports both systems 6 and 7. The TruScan 3D also is compatible with Letraset's ColorStudio and MicroFrontier Inc.'s Enhance software.

The TruScan 3D includes a SCSI interface and cable and contains 1 Mbyte of RAM that allows users to scan directly to disk without relying on the RAM in their Macs, Truvel said.

Truvel's new TruScan 3D features a tower containing the CCD, lights and a camera-style lens. The scanner can capture objects that are up to 2 inches tall.

Owners of the TZ-3BWC can upgrade to the new model for $3,995. The TruScan 3D is available without the Zebra board for $8,695.

Truvel, a division of Vidar Systems Corp., is at 520 Herndon Parkway, Herndon, Va. 22070. Phone (703) 742-9500; fax (703) 471-1165. □

Truevision to give rebates for NuVista+ boards

Indianapolis — Truevision Inc. this week will kick off a rebate program for the NuVista+ video graphic boards and VideoScript software.

From Nov. 1 through Jan. 31, users who trade in old NuVista+ cards can get $1,000 off a new 2-Mbyte NuVista+ card, which includes VideoScript, Truevision's video-transition software.

The rebate plan also includes third-party video products, such as Mass Microsystems Inc.'s ColorSpace board or RasterOps Corp.'s 364 card, which are worth $750 when traded in for the Truevision bundle.

NuVista+ is a $4,090 NuBus board that offers advanced video-production features, such as 32-bit-per-pixel color capture and display, chroma keying, and genlock.

Truevision is offering a similar rebate for its TARGA+ video-production board for IBM PCs and compatibles.

Truevision Inc. is at 7340 Shadeland Station, Indianapolis, Ind. 46256. Phone (317) 841-0332; fax (317) 576-7700. □

ClipMedia

From Page 20

than 40 gray-scale and 24-bit-color PICT backgrounds for multimedia presentations, four of which will contain a complete set of matching buttons in a variety of sizes. The collection also will include 75 animations of machines, symbols and flags in Director 2.0 movie format; 25 digitized PICS video segments of business images and landscapes; and 100 sound effects and 25 musical selections in stereo 22-kHz and mono 11-kHz Audio Interchange File Format (AIFF).

Users can incorporate the collection's sounds and images into their presentations royalty-free, according to MacroMind, although broadcast use is subject to restriction.

A Microsoft Windows version of ClipMedia Volume I: Business and Technology will be available in November, according to the company. MacroMind said it will release further volumes in the ClipMedia series, but the company has not announced topics.

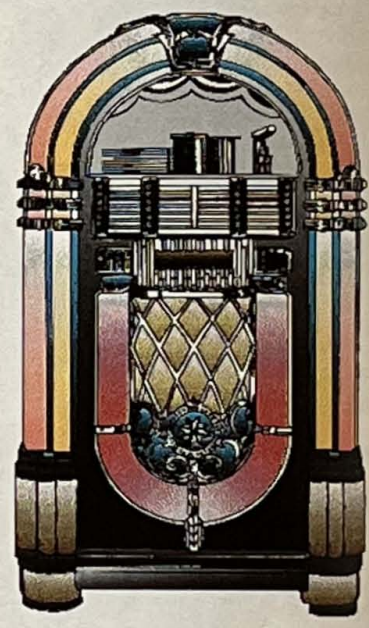
▶ **Pixar** is now shipping a $695 3-D package on CD-ROM, bundling its MacRenderMan rendering program and Showplace scene-composition software with animated sequences and sample photographic textures from an upcoming clip-art collection. On floppy disks, MacRenderMan and Showplace retail together for $995.

The disc includes a preview of Pixar's upcoming Classic Textures CD-ROM, which will be available early next year. It will feature about 100 high-resolution, seamless 24-bit photographic images of natural textures, such as rocks and vegetation, in PICT format.

The Showplace/MacRenderMan CD-ROM also contains sample images and sequences from Pixar's popular films, including "Tin Toy," "Red's Dream" and "Knick-Knack," in MacroMind Director 2.0 format, as well as MacroMind's Director film player software.

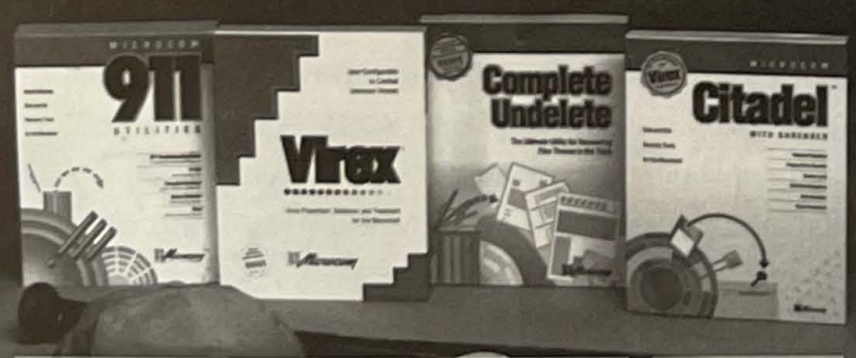
MacroMind Inc. is at 600 Townsend, San Francisco, Calif. 94103. Phone (415) 442-0200; fax (415) 442-0190.

Pixar is at 1001 W. Cutting, Richmond, Calif. 94804. Phone (510) 236-4000; fax (510) 236-0388. □



This jukebox is among the images on MacroMind's ClipMedia CD-ROM for multimedia producers.

Cover All Your Bases
with Utility Software from Microcom



When working on a computer today, there are a lot of data problems that can foul up your game plan. To avoid the disabled list, Microcom offers an all-star team of data recovery and security utilities for the Macintosh. Utility software from Microcom can prevent aggravating and costly disruptions of your work. From recovery of damaged disks and files or files you've accidently deleted to ongoing protection against unauthorized access and computer virus infection, we can solve your problems. See your favorite software dealer today for the grand slam lineup of Microcom utility products or call us about our site licensing program. You'll hit a home run every time with utility software from Microcom.

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AP

From Page 20

medium-size newspapers are expected to use the electronically transmitted pages in several ways.

Newspapers can reproduce the pages in their entirety or use any of the text, photo or graphic elements. They also can modify the pages, substituting local perspectives or advertising for selected elements. In addition, fonts can easily be substituted using QuarkXPress style sheets.

"It's like having a team of experts at our disposal," said Bill McGrath, art director at The London Free Press, an AP subscriber in London, Ontario, and a beta site for the project.

The pages, called Agenda '92, are provided free to AP-member newspapers every month.

The first page, transmitted last week, was titled "The Heart — A User's Guide." It covered the prevention and treatment of heart disease. The pages are transmitted electronically via AP's GraphicsNet satellite system. AP estimates that about half its members use QuarkXPress for pagination work.

Lockwood has redesigned some 60 newspapers around the world over the past 14 years and has worked on the Mac for the past five years. He brings a unique approach to page design, creating what he calls a "visual narrative," where the subject matter determines the look of a page. He uses color, typography and placement editorially, rather than decoratively.

"Readers can create their own paths through the news," Lockwood said. "A page is not just separate pieces juxtaposed next to each other, but elements woven together." □

FREE ISSUE

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(See the attached card for details.)

FREE ISSUE *of* MacUser

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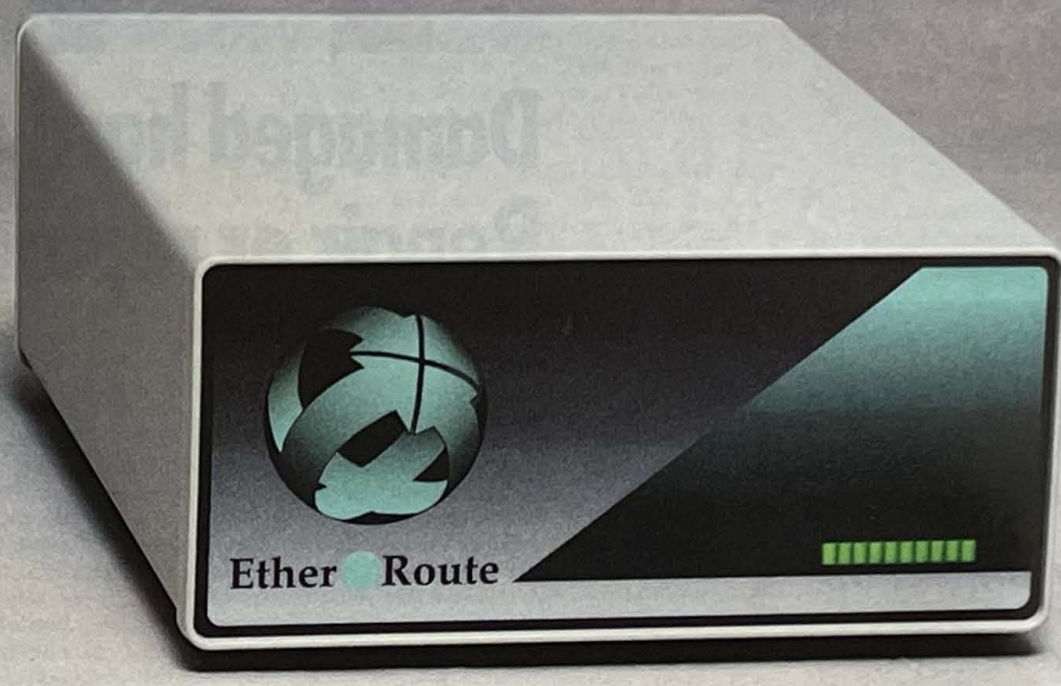
Serious Competition.



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Given the competition, we know that it takes something serious in the way of features, price and performance to interest you in a router. That's why we've designed Ether•Route/TCP with every feature you'd expect—and then upped the ante.

Comparison:	Ether•Route TCP	FastPath 5
LocalTalk—Ethernet Gateway	✓	✓
AppleTalk Phase 1 & 2 Support	✓	✓
Thin, Thick & 10BaseT Support	✓	✓
Configure, Monitor & Upgrade from Anywhere on AppleTalk Internet	✓	✓
TCP/IP, MacTCP & IPTalk Support	✓	✓
SNMP & Atalkad Support	✓	✓
*DECnet ™Phase IV Support	✓	✓
Hardware Enhanced LocalTalk Support	✓	✓
One-Year Warranty	✓	✓

No Comparison:	Ether•Route TCP	FastPath 5
Two LocalTalk Ports	✓	
Seed, Non-seed & Auto-seed Routing	✓	
AppleTalk in IP Tunneling	✓	
ENS™ Security	✓	
30-Day Money-Back Guarantee	✓	
Code & Packet Memory	384K (standard) 640K (640)	512K
Suggested List Price	$1895 (standard) $2195 (640)	$2799

We also offer Ether•Route, which provides AppleTalk-only sites with the most cost-effective, hardware-based router available. MacUser (April '91) rated Ether•Route highest among six hardware-based routers, and said, *"It's a superior choice if you don't need TCP/IP capabilities. Its ease of use and solid performance are a pleasant surprise in so young a product."*

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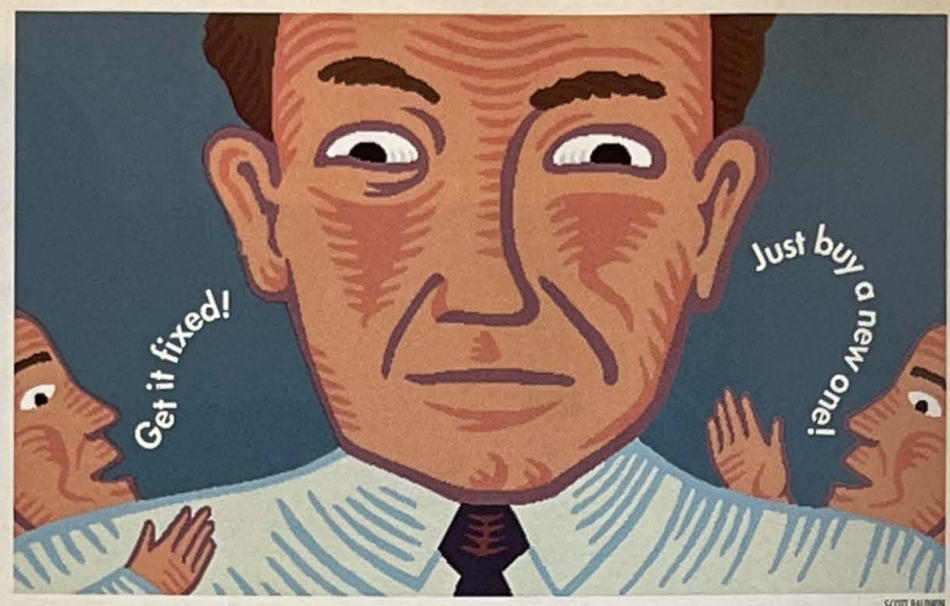
**DECnet support will be supplied as a no-cost software upgrade in the fourth quarter of 1991.*
All product names are trademarks of their respective manufacturers.

MACWEEK SPECIAL REPORT:

THE LATEST IN MASS STORAGE

Storage is hardly the most glamorous aspect of desktop computing, but there's nothing that has greater impact on performance and reliability. This fall's Special Report on mass storage reviews the issues that really matter in hard drive performance, assesses the uses of SCSI accelerators, zeroes in on the area of removable-media storage and details your options if an important drive fails.



SCOTT BALDWIN

Damaged hard drives: Repair or replace?

By John Battelle

Repairing a crashed hard disk is like fixing your aging car after an accident: You can sink a bundle into body work, but next week your transmission may give out.

With hard disks, it might be worth the additional expense to buy a new drive, but your old one may still have years of service left under its hood. And, like a car, often there's really no way to know.

But hard drives contain crucial data that may make repair essential. The opinions of hard drive experts are as varied as auto mechanics when it comes to deciding whether to save or junk an ailing drive, but there is one constant: It depends on the circumstances, particularly on whether you need to retrieve the data on your dead disk.

"It depends on what you need ... there is an element of luck," said Charles McConathy, president of hard disk manufacturer MicroNet Technology Inc. "I personally wouldn't invest any money repairing a low-capacity drive" when new, higher-capacity drives may be just a few hundred dollars more. "It may be the (controller) card is bad, and it only takes 20 minutes to put a new one in. But then what if the heads go bad a little later?"

Said Robert Katzive, vice president of Disk/Trend Inc., a Mountain View, Calif.-based research company: "My overall leaning would be to get a new drive."

Other experts disagree. "It doesn't make sense to get a new one unless your old one is showing signs of age" beyond the initial breakdown, said Steve Burgess, president of Mipro III, a company in Redwood City, Calif., that specializes in hard disk repair.

Signs of aging include grinding noises, occasional failure to spin up and extremely slow access time. "In general, it's necessary to repair the drive if you need to recover the data, so why not just keep it?" Burgess asked.

Capitalizing on an aging hard drive population, many repair companies have sprung up, offering services from data recovery to extension of original manufacturer warranties.

Decisions, decisions

If you repair your hard drive:

- You retain original data
- Life of drive is extended

However:

- Stability is not guaranteed
- Drive could die again

If you decide to replace it:

- You get a brand new drive
- Small to medium drives are inexpensive

However:

- Original data is lost
- Replacing large drives could be costly

Down and dirty in the clean room. So what should you do when your drive gives up the ghost? The first move is to try to save your data using an off-the-shelf utility, such as Symantec Utilities for the Macintosh or The Norton Utilities for the Macintosh, both from Symantec Corp. But users beware: You can corrupt or destroy crucial data by attempting to repair a drive with software utilities.

In certain circumstances, the Norton utilities, for example, offer a software option to fix damaged disks. Although Norton clearly states data may be lost in the process, there is a temptation to cross your fingers, hit the OK button and hope it all works out.

However, if the hardware is not responding at all, then "the next move should be to call the dealer" from whom you purchased the drive, Katzive said. "If he's doing his job he will have a good idea who in the local area specializes in repair."

Several companies specialize in resuscitating lifeless drives, charging anywhere from $75 to $95 an hour for data-retrieval services and $150 to $475 for repairs, depending on drive capacity. Retrieving data from a typical 80-Mbyte drive takes from four to six hours, according to Scott Gaidano, president of DriveSavers, a Macintosh drive specialist in Novato, Calif.

If you have a daily backup of your data, it is probably not worth paying someone else to save one morning's work. If you don't have a backup, you risk losing some software as well as your data: Many programs have "keys" that count installations, and you may have trouble reinstalling from an original program disk, Katzive pointed out. "Anyone who doesn't do backups is exploring the leading edge of dumb," he said.

For those exploring that leading edge, repair companies can go beyond commercial software packages, often applying pro-

See Repair, Page 30

Just how fast is a fast hard drive?

While hard drive speeds are often subject to vendor interpretation, there are several issues to consider that determine how fast a hard disk you need.

By Emily Kay

Craig McHugh was not satisfied with the 22-millisecond access time provided by his newly purchased 105-Mbyte hard drive, especially since La Cie Ltd. advertised its product's speed at nine milliseconds.

A La Cie technical-support person told McHugh, a programmer with Pro Photo Connection in Irvine, Calif., that nine milliseconds was the drive's "potential" peak access time for certain applications using the unit's disk-caching software.

"It's very deceiving, and I told them that," McHugh said. "The technical guy said they realized that, but said that 'everyone else does it, and it's the only way we can compete.' "

Joel Kamerman, general manager of La Cie, a Quantum Corp. company in Tualatin, Ore., defended the company's ads, noting that footnotes clearly state that speeds listed are for "typical application access time using a 64-Kbyte DiskCache."

"We did what others are doing in similar ads," said Kamerman, adding that vendors test their drives in optimum configuration, not under real-world conditions.

McHugh was not alone in his belief that hard drive speed specifications are difficult to decipher, and indeed, can befuddle and even deceive users.

Confusing specifications. It's unclear what to look for in the speed of a hard disk because vendors use various definitions of speed. Hard drive speeds often are measured in terms of access time, seek time, latency and transfer rate, all of which can completely obfuscate the issue for anyone attempting to decipher hard drive speed specifications. According to experts, which definition is most important to focus on depends on the kind of data with which you work.

Access time vs. seek time. Access time, the most touted hard disk speed specification, is actually just the sum of two other factors, seek time and latency. But as Tad Shelby, spokesman for PLI, pointed out, "What does that mean?"

Seek time is the time it takes the drive head to get to a specific track on the disk. It can provide information on how appropriate the drive is for certain applications. Fast seek times are most relevant for tasks such as looking for small bits of random data all over a database or for applications that are not data-intensive but can have a large number of small files, such as word processors and spreadsheets.

The second part of the equation is latency, which is the average amount of time it takes the disk to spin so the correct portion of the data is under the head. Faster latency times are important for anyone who works with large files, because the faster the read-write head gets to the correct data, the faster it can be transferred back to the computer.

Transfer time vital. For high-end graphics use, such as color pre-press, video and animation, transfer rates are key, because the drive may perform only one seek, taking a dozen or two milliseconds to get to the data, but several seconds to transfer it to the host computer. In other words, how fast users can get those large chunks of graphics data transferred from the drive to the computer is more important than how fast they can find them.

Industry observers also agree that transfer rates generally are a more important gauge of a hard drive's speed than access time. "For long pieces of data, such as graphics files, transfer rate becomes the determining factor in how fast a drive performs," said John Tessier, a product development technician at Mirror Technologies in Roseville, Minn.

Kamerman said: "If a drive is working at zero milliseconds but the transfer rate is very slow, it's academic how fast the seek time is."

SCSI limits speed. Although transfer rates are important, observers caution that no matter how fast a drive's transfer rate, the Mac's SCSI interface limits even the fastest hard drive's throughput. "A Mac IIfx SCSI maxes out at a 1.5-Mbps data transfer rate," said PLI's Shelby. "A lot of drives are faster than the Mac's SCSI board."

SCSI adapter boards can increase hard drives' transfer rates substantially. Patrick Roth, chief executive of Yellow Line Consulting Corp. in Ithaca, N.Y., has doubled the speed of his hard disk with a SCSI accelerator board from ATTO Technology Inc. "It's critical to have a SCSI accelerator when you're working with large picture files of 60 to 80 Mbytes that come from high-resolution scanners," Roth said.

Norman Fong, vice president of engineering at FWB Inc., noted that the SCSI-2 standard, which should be finalized by year-end, will greatly improve transfer rates (see story, next page).

Caching confusion. Caching, which refers to the way a hard disk or other device stores data before quickly transferring it, also can obscure the true speed of a hard disk. "When companies say 12-milliseconds [access time], they're misleading the public because of the caching issue," said Eric Herzog, product marketing manager for Macintosh products at Storage Dimensions Inc., a mass-storage vendor.

Randel Osborne, product manager with storage company Microtech International Inc., agreed. "If there's a data cache of 64 Kbytes, you can move files of 64 Kbytes and under quickly," he said. "But once you start to save, read and record files greater than that, you're no longer relying on the speed of the cache but the mechanical speed of the drive."

See Speed, Page 27

Hard disk terms

Access time: The time it takes from when the Mac first sends a command to the hard disk to when the read/write head finds and reads the requested information. The formula for access time is generally access equals seek time plus latency.

Block: The smallest "chunk" of memory accessed or transferred by the disk drive.

Burst rate: The fastest rate a drive can transfer data.

Cache: A temporary storage area for data when it is transferred from one area of the computer to another. A RAM cache is used to store and quickly refer back to recently used data from a storage device.

Sustained rate: A sustained rate refers to the highest transfer rate a drive can maintain over a longer period of time and is much slower than a burst rate.

Transfer rate: The time it takes to transfer information from a storage device to the CPU, usually defined in megabytes per second.

Access time = latency + seek time

While manufacturers stress access time, variations in latency and seek time can affect how fast a drive performs certain kinds of tasks.

Latency: The time it takes for the track where the desired data is located to rotate into position under the read-write head. Reduced latency times are important for anyone working with large files, such as graphics or pre-press applications.

Seek time: The time it takes for the disk drive to move its read-write head across the disk platter to the track where the desired data is located. A fast seek time is preferable when working with a lot of small, random files, such as database applications.

CHAD KUBO

SCSI-2 adapters: New products open the SCSI bottleneck

SCOTT BALDWIN

By Jonathan A. Oski

How quickly technology changes is illustrated by the appearance of SCSI-2 adapters on the product lists of most vendors of high-capacity SCSI drives. Just six months ago we were telling you that SCSI-2 adapters were a niche product with a limited set of applications in the Macintosh market (see MacWEEK, March 26). In the short time since then, improvements in storage technology and the availability of higher-performance integrated circuits have enabled drive vendors to offer disk systems (adapters and drives) that can cure the I/O woes of many Mac users.

SCSI-2 uses. Although there are many applications for SCSI-2 adapters, including database, multimedia and other I/O-intensive applications bound by limitations in current system, peripheral and adapter technologies, color pre-press work is still the biggest market for SCSI-2 products.

Bryan Dion, electronic pre-press manager at Image Printing Systems Inc., a full-service graphics, pre-press and print shop in Milwaukee, uses both a NuPort SCSI-2 adapter from MicroNet Technology Inc. and a Silicon Express SCSI-2 adapter from ATTO Technology Inc. on his color image-processing workstations. Said Dion: "We chose the MicroNet adapter/disk combination for use on our file servers because of the high-capacity requirements [of color pre-press images], but preferred the ATTO Silicon Express and SiliconDisk Pro combination where throughput really counts."

Products available. SCSI-2 adapters that offer support for some elements of the SCSI-2 specification are available from MicroNet, ATTO, Storage Dimensions Inc., PLI, DayStar Digital Inc., Sixty Eight Thousand Inc. and soon, FWB Inc. and Jets Cybernetics.

But most of today's storage devices cannot take advantage of all of SCSI-2's specifications. However, some of the newer products, based on NCR Corp.'s newer SCSI chips, do provide Fast and Wide SCSI capabilities that allow transfer rates of 5.5 to 20 Mbytes per second.

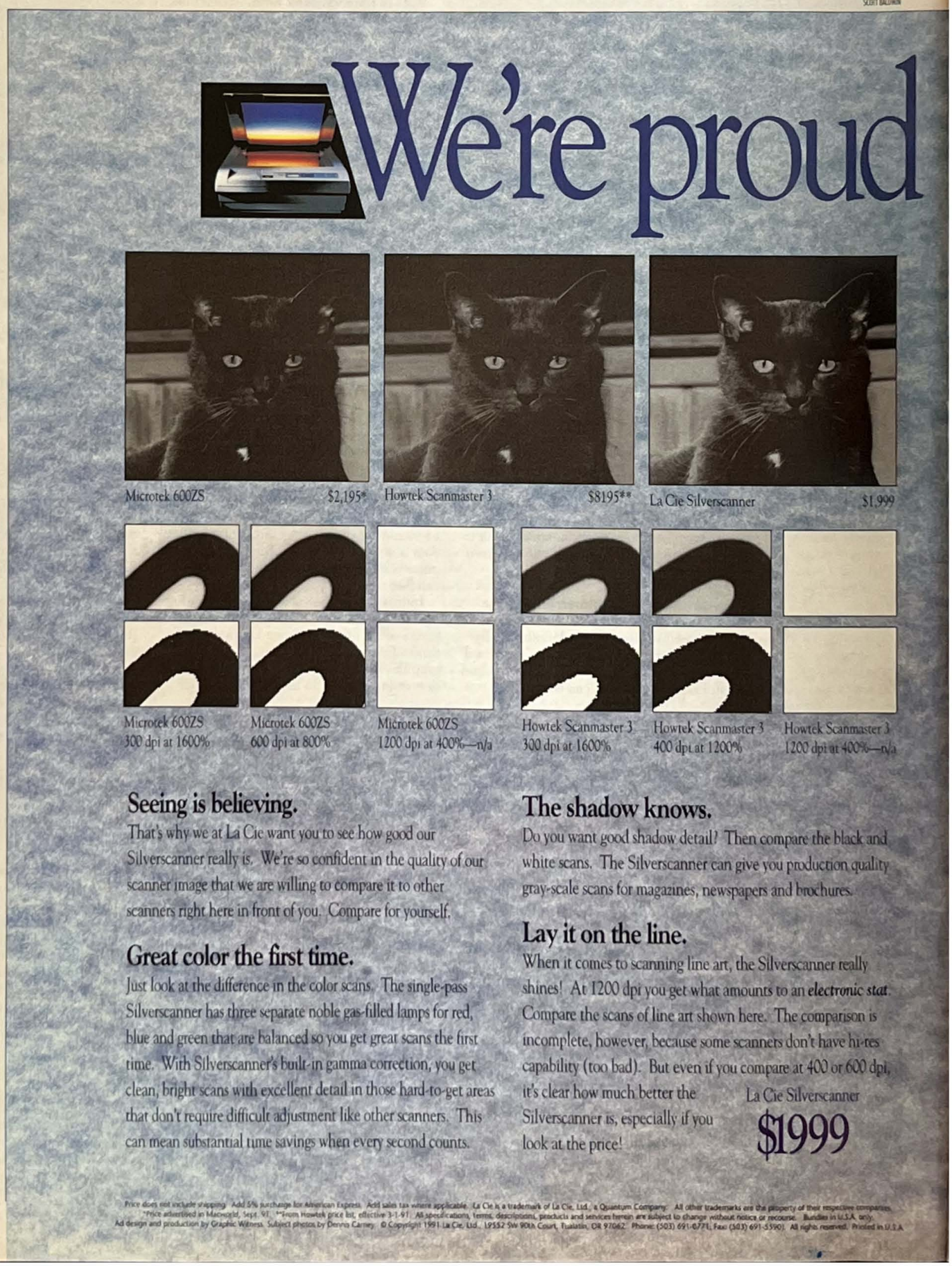
Fast and Wide are the two main elements of the SCSI-2 specification. Fast SCSI doubles the synchronous data rate of an eight-bit bus to 10 Mbytes per second, while Wide SCSI allows for 16- and 32-bit data paths. When combined, Fast and Wide SCSI can increase data transfer rates to 40 Mbytes per second. Although the Macintosh operating system doesn't support synchronous SCSI data, some third-party boards and storage devices can.

Another thing to keep in mind is that, for the most part, only 300-Mbyte or larger hard disks can really take advantage of a SCSI-2 adapter. In fact, ATTO President Tim Klein said he is hesitant to recommend an adapter to anyone "without a 300-Mbyte drive (or larger) or in instances where the added features, such as disk mirroring, striping, duplexing or sharing, aren't necessary."

Many vendors of high-performance disk systems have added SCSI-2 adapters to their product lines. Some, including MicroNet, PLI and FWB, have chosen to develop their own adapters, while others, such as Storage Dimensions, buy OEM products. Storage Dimensions' Data Cannon boards use the company's own MacinStor driver software coupled with boards made by ATTO and Sixty Eight Thousand.

Bus mastering. Bus master cards make a better choice for SCSI-2 adapters, since a bus master card can offload most of the I/O processing load from the Mac's CPU, freeing the CPU to perform other tasks. Today, only the ATTO, Sixty Eight Thousand and Storage Dimensions boards offer bus master cards. Later this year, FWB's SCSI JackHammer and Jets Cybernetics' SurfPort XPe also will be available in bus master versions.

Peripherals are catching up. An adapter capable of a sustained transfer rate of 10 to 20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Ad design and production by Graphic Witness. Subject photos by Dennis Carney. © Copyright 1991 La Cie, Ltd., 19552 SW 90th Court, Tualatin, OR 97062. Phone: (503) 691-0771; Fax: (503) 691-5590. All rights reserved. Printed in U.S.A.

Mbytes per second is of questionable value when today's peripherals cannot provide data at these rates. Jets Cybernetics Chairman Joseph Edozien said: "We have kept distribution of our [SurfPort XPe] limited because it is ahead of the state of the art in peripherals technology. Ultimately, we want to provide a balanced solution to end users when Fast SCSI drives are available."

Others, including ATTO's Klein, disagree. "Any application that is I/O-bound will underutilize the capabilities of some of the latest Seagate, Toshiba, Micropolis or Fujitsu drives when connected to the Mac's SCSI port," he said. "Most high-end drives being sold today will perform better with a SCSI-2 adapter."

Image Printing Systems' Dion, who previously relied on PLI drives for his server, said: "The NuPort and MicroNet SBT-1288NP combination crushed the old file server by 20 percent to 30 percent better performance on I/O. The only way to improve performance of the Mac, as far as we're concerned, is getting away from the internal SCSI connectors and using NuBus SCSI adapters."

New Mac obsolescence. SCSI bottlenecks in the current Mac line limit throughput to about 1.5 Mbytes per second. New Macintoshes, based on the 68040, reportedly will provide faster SCSI throughput using the NCR 53C96A chip and a faster NuBus implementation.

Within six to nine months after the release of the new Macs, their enhanced throughput capabilities will be overshadowed by Wide SCSI drives, which are due to ship sometime in mid-1992. This highlights the need for continued growth and improvement in the SCSI-2 adapter market to address persistent deficiencies in the Mac's design.

Other issues. SCSI cabling and termination on the Mac always has been a bit of a black art, and the increased bandwidth of Wide SCSI implementations will demand stricter adherence to SCSI-2 guidelines. Norman Fong, vice president of engineering at FWB, said: "Cabling and termination will be more complex with Wide SCSI implementations because of the advent of new SCSI cables and active termination."

Chaining new Wide and Fast SCSI peripherals with older SCSI components will present challenges as well. A 50-pin Amphenol cable is widely used today for SCSI connections, but a new 68-pin interface, dubbed the P-cable, is gaining support for 16-bit Wide SCSI connections. Combining the two technologies should ensure that our cabling woes are not yet over.

Now or later ... Applications for SCSI-2 adapters have grown beyond the strict niche market they were earlier this year. Users whose I/O demands stress their current configuration will welcome the availability of new SCSI-2 adapters and peripherals in the coming three to nine months. □

Speed

From Page 25

Other considerations. Although speed is important, users should consider other issues as well. "Most disk drive companies talk about tests on drives showing less than 1 percent difference in speed, which the customer never sees, so it isn't relevant," Kamerman said.

Jerry Goldstein, a graphic artist in Santa Monica, Calif., replaced a hard disk with a slightly slower FWB 425i because he needed a half-height model from a company he could trust. The speed to access graphics files of about 20 Mbytes was dropped from 12 milliseconds to 15, which Goldstein said he couldn't discern. "Speed is important," he said, "but more so are quality, reliability, service, warranty and ease of repair or replacement."

Using applications that are RAM-intensive also is an important consideration. PLI's Shelby said: "If they're using programs that are 100 percent memory resident, the difference between 15, 28 and 35 milliseconds is no big deal; the issue is how much RAM they have."

You decide. A hard drive's speed clearly is critical for most Macintosh environments, but vendors urge users to research carefully before buying. While a hard disk's seek time, latency and transfer time might be documented, the only real way to determine a drive's speed is to test it yourself with your particular applications.

Most integrators use different algorithms to determine access time, so it's difficult to measure access speeds from vendor to vendor. In addition, hard drive vendors publish the access times listed by the manufacturers, which often don't reflect real-world performance, said Fred Swan, product manager with PLI.

"Most are inaccurate to one degree or another," Swan said. "The numbers are interesting, but they're not gospel." □

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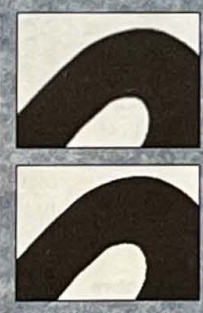
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Removable storage devices do battle in the marketplace

By Mitzi Waltz

MICHAEL SKY

You can't have enough storage. No matter what size your hard disk is, there are huge graphics and multimedia files just waiting to clog it up. And when you want to take these files with you, copying them onto a series of floppies is a time-consuming hassle.

Removable-cartridge drives are the obvious solution, and buyers have been snapping them up. Service bureaus have been especially receptive, with many encouraging clients to bring in their projects on 44- or 88-Mbyte cartridges from removable-drive pioneer SyQuest Technology Inc. of Fremont, Calif.

But SyQuest is fighting to hold the high ground against a renewed challenge from an old rival, Iomega Corp., as well as a few systems made by Ricoh Corp. And looming over the whole scene is a new generation of 3.5-inch optical and floptical drives (see story below).

The SyQuest standard. The most-often-cited advantage of SyQuest drives is their market acceptance. About 90 percent of all removables for Macs are based on SyQuest mechanisms. The company currently offers 44- and 88-Mbyte options, which have been repackaged in various configurations by more than 27 vendors.

However, while the 88-Mbyte drives, introduced earlier this year, can read 44-Mbyte disks, they can't write to them — and the 44-Mbyte drives can't handle 88-Mbyte disks at all. That makes it difficult for buyers who have files stored on the smaller cartridges to move on to higher-capacity machines. It's a dilemma that has slowed sales, SyQuest admits.

In the past, some users reported serious reliability problems with SyQuest systems (see MacWEEK, Oct. 23, 1990). But the manufacturer says it has steadily improved its technology, and reports of problems in the field are now fewer and farther between.

A user's view. Darrel Plant, a graphic artist at Graphics Plus, a Beaverton, Ore.-based service bureau , said he hasn't had many compatibility problems. "We have three SyQuest removables here, and they're all 'budget machines,'" he said. "I haven't found any difference between them." His collection includes two drives from Ehman Engineering Inc. of Evanston, Wyo., and one from Mac Direct, the Chicago-based mail-order company.

"My overall concern was price," Plant said. "SyQuests were cheaper, there was a wider variety of options, and it's a standard for service bureaus."

Skip Huzarevich, president of Fort Worth, Texas, service bureau and printer Lino Inc., recently moved from a 44-Mbyte SyQuest-based drive to the Infinity 88 Turbo removable from PLI.

"We've used the 44s for some time, so moving on seemed like an easy progression," Huzarevich said.

The Ricoh alternative. Ricoh-based removable-cartridge drives use a technology similar to SyQuest's but add several innovations designed to improve reliability, in particular by reducing the risk of dust contamination.

In general, however, the Ricoh systems have had only a limited effect on the market. And as yet there is no indication that the company is planning a new, larger-capacity mechanism to compete with those from SyQuest and Iomega.

The Bernoulli option. Now available in 90- as well as 44-Mbyte sizes, Iomega's Bernoulli drives incorporate a proprietary floppy-media technology that makes them immune from head crashes. "If there's a power loss, shock or vibration, the media flies away from the head instead of having a head crash," explained Mike Joseph, vice president of marketing for Iomega. Users can safely store, mail, ship or even drop Bernoulli cartridges; Iomega now backs them up with a five-year warranty.

As with SyQuest, however, Iomega's transition to higher capacities has had some costs: The new 90-Mbyte Bernoullis can read from but not write to 44-Mbyte cartridges.

Still, Iomega has a big head start in the removable-storage market for IBM PCs and compatibles. Wayne Boatman, mission operations support lab manager at NASA's Johnson Space Center in Houston, praised the Bernoulli's flexibility as a good solution for sites like his, where many different makes of computers are in use. "If you have some classified or proprietary data, you could remove the cartridge, slap a 'classified' label on it, and throw it in the safe," Boatman said.

"The bad thing is, it's very small for us — 90 megs is nothing with the kind of files we're generating," he said.

The end analysis. If you're creating NASA-size files, you may need to bypass removable drives altogether and look toward higher-capacity opticals. But for most users, there is a removable that will do the job, and prices have fallen dramatically in the past year.

Iomega brought out its Bernoulli 90 Transportable for the Mac in July at an aggressive $1,198, and street prices run as low as $850. After a series of cuts, street prices for SyQuest-based 88-Mbyte drives are down to the $650 to $800 range, while the 44-Mbyte units now sell for as little as $450.

Companies that use Bernoullis with their PCs tend to want them for their Macs, too, while some government installations opt for hard-media drives, believing they will last longer as archival media.

If portability of data is the deciding factor in picking a removable, SyQuest has the edge. While it would be nice to choose your removable solution based on what's fastest, largest or sturdiest, if your removable isn't a standard SyQuest-based drive there may not be many places where you can take your data. □

Big storage, small package: 3.5-inch floptical and magneto-optical drives

Two new types of removable-storage drives also will be vying for places on Mac desktops this year.

Removable 20-Mbyte drives based on optically tracked magnetic-storage technology from Insite Peripherals Inc. of San Jose, Calif., are scheduled to arrive from at least four vendors this month.

New 128-Mbyte removable rewriteable optical drives are already being shipped by two companies, with several other vendors scheduled to ship compatible units later this year.

Floptical technology. Insite's "floptical" drive offers a significant jump in capacity with a degree of backward compatibility — besides reading to and writing from new 3.5-inch 20-Mbyte floppy disks, the drive also reads from and writes to existing 1.44-Mbyte floppies, as well as IBM PC-style 720-Kbyte disks. However, its Mac-oriented models won't be able to read from or write to standard 400-Kbyte or 800-Kbyte Mac disks.

As with standard floppies, floptical drives use magnetic-recording technology for reading and writing data. But Insite is able to pack much more data on each disk by adding permanently embossed patterns as a guide for track positioning.

Performance also should be slightly better than with ordinary floppies. Floptical drives use a 720-rpm rotation rate (compared with 360 rpm for most floppies and 3,600 rpm for most hard drives) for reduced latency and faster transfers.

The drive mechanism is similar in size to a standard Mac floppy drive, and, Insite said, it can even be used as an internal replacement drive on regular full-size Macs (that is, if 800-Kbyte compatibility isn't required). For portable applications, the drive can be turned off to reduce power, then spun back up to speed in 0.7 seconds. However, the first generation of drives will be packaged as external units for desktop use.

Insite has a number of drive-system makers lined up to deliver Mac-based versions of the drive, including GrassRoots Inc. of Aubry, Kan.; Liberty Systems Inc. of Santa Clara, Calif.; Procom Technology Inc. of Costa Mesa, Calif.; DJK Development of Warren, Mich.; and TASS Optical World Inc. of San Diego.

While pricing on these drives won't be set until actual delivery, executives from the drive companies said they expect to see numbers in the $750 to $1,000 range.

At first, Insite will be the only media supplier for the specially prepared 20-Mbyte floppies. But 3M Corp., Hitachi America Ltd. and Maxell Corp. of America also have pledged to start making media as soon as drives reach the market.

Prices should start at about $16 per disk, but Insite is predicting the cost will drop steadily toward the $5 to $10 level within a year or two.

128-Mbyte removables. For users who need disk capacities of more than 20 Mbytes but don't need the volume size or bulk of the 5.5-inch 600-Mbyte optical disks, the new 3.5-inch 128-Mbyte format may be just right.

As true optical drives, the 128-Mbyte units offer the usual advantages of high-information density, long media life and greatly reduced dangers of head crashes. Based on accelerated testing, most makers of the drives are citing an archival storage life of at least 10 years —which, they say, is five times longer than the assured storage life for floppy-technology magnetic disks.

The 128-Mbyte format also will be widely supported. IBM Corp. is making 128-Mbyte drives and using them in its PS/2 line, as well as offering basic drive mechanisms to drive-system makers on an OEM basis. Units are also coming from Japan's Nakamichi Corp.; Sony Corp. is scheduled to start shipping OEM drives later this fall; and Epson America Inc., TEAC Corp. of America and Panasonic Communication and Systems Co. have announced plans to jump into the 3.5-inch market soon.

With average access times in the 40-millisecond range, the 128-Mbyte units can locate data about as fast as a hard disk. Even though read operations are slightly slower and writing drops to speeds in the high-performance floppy range, many users report they're suitable as an alternative as well as a supplement to a hard disk.

Pinnacle Micro and O.C.E.A.N. Microsystems Inc. are already delivering units based on the Nakamichi mechanism. List prices of both are $2,499, with media going for about $100 per disk.

Drives based on the Sony product should be widely available later this year from a number of drive-system makers. Several of these also say privately they are working to adapt the IBM drive for Macintosh use. Prices are not set, but they could be a bit lower than the current level — IBM sells its PC-format internal version for $1,795 with media priced at $60 per disk.

— By Steve Rosenthal

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What to do before, after your hard disk dies

What to do before your hard disk dies:

- Back up your hard disk to any available medium. Without a backup, deciding whether to replace a bad drive or recover or repair the hard disk becomes a moot point.

What to do after your hard disk dies:

- Try to save your data using an off-the-shelf utility such as The Norton Utilities for the Macintosh or Symantec Utilities for the Macintosh, both from Symantec Corp. But be aware that crucial data can be corrupted or destroyed by attempting to repair a drive with software utilities.
- Call the dealer where you purchased the drive; they should have a good idea who in the area specializes in repair.
- Get an estimate of the repair and retrieval costs before the repair shop gets started. If the hard disk is severely damaged, it may be better to cut your losses and buy another hard disk.

Repair

From Page 24

prietary code to coax data back from the dead. They also have in-house clean rooms — dust-free environments in which technicians can plumb a drive's delicate inner workings.

"We have a set of proprietary hardware and software tools to get data off in a binary fashion" when off-the shelf utilities fail, DriveSavers' Gaidano said. "Ninety-five percent of the time we can get data from the damaged disk." Mipro III also has proprietary data-retrieval methods and claims a 95 percent recovery rate.

Several things can go wrong with a drive, but the most common is a bad controller card, coupled with a driver (software) problem. "It's usually not the media or the motor," Burgess said. "Once they come in, we fire it up to see if it spins. If we can, we'll use Symantec's utilities to get what we can off the disk. If we can't, we'll go back to the clean room and open it up."

Opening up the hard drive is clearly the last resort. "One of the last things we do in data recovery — this is a very heavy-duty procedure, last gasp — we go in and pull the drive apart, get it working one way or another," Gaidano said. "But sometimes the head damage is so severe and the motor is gone, that there is no way within reason for the drive to be saved."

One way to avoid the cost of repair is to buy extended warranties for your disks, offered for a price by most drive makers. Microtech offers an extended warranty for 12 competing manufacturers.

"Within reason" is, of course, a subjective term. For one customer, Gaidano said, it meant spending $3,500 to extract crucial data from a damaged drive worth about $300.

One way to avoid the cost of repair is to purchase extended warranties for your disks, offered for a price by most drive makers. Microtech International Inc. even offers an extended warranty for 12 competing manufacturers.

DOA: Now what? Standard warranties don't last as long as drives, which average five to six years of daily service. If your disk dies out of warranty, one option is refurbishment — replacing the guts of an old drive with new components.

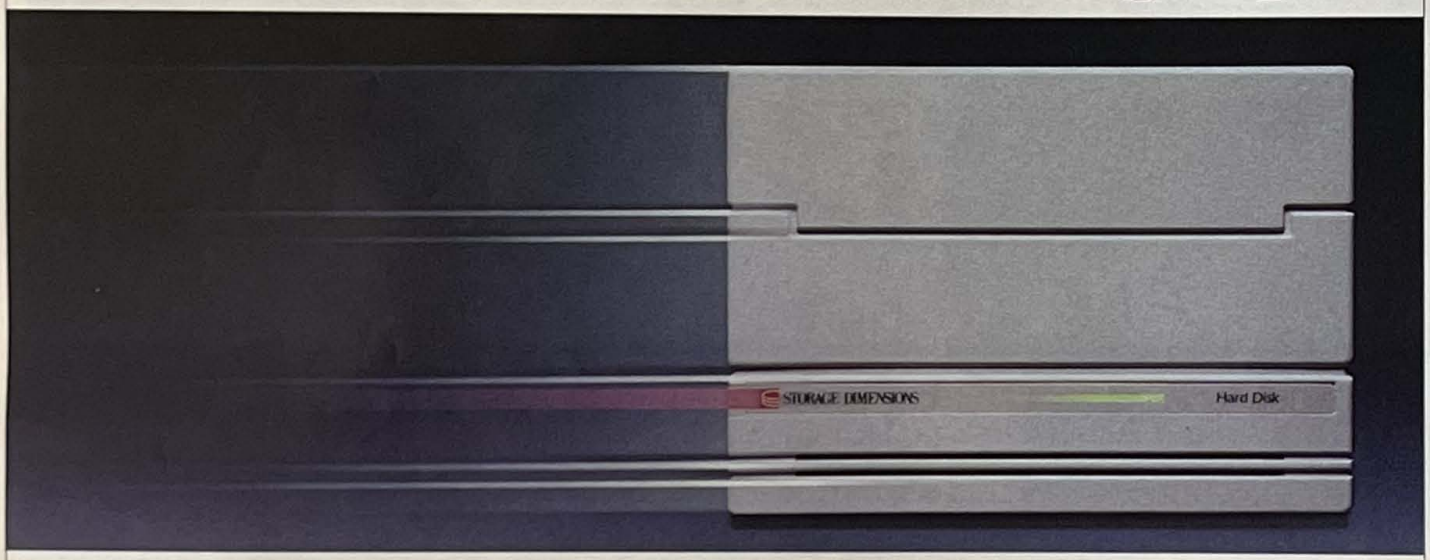
DriveSavers offers a flat rate of $599 for a replacement 105-Mbyte Quantum drive mechanism, complete with new formatting, the latest system software and a copy of the data recovered from your old disk. That price includes a two-year warranty and any other new parts — such as fans or power supplies — that might be needed.

Mipro III also offers drive refurbishing at "market prices," Burgess said. Most drive manufacturers also offer some kind of refurbishing service.

But not everyone is convinced that refurbishing is a good idea. "Whenever you are dealing with refurbished, you aren't dealing with new," Disk/Trend's Katzive said, adding that the headache of dealing with the second breakdown, warranty or not, may not be worthwhile.

In the end, your circumstances — whether you need more storage anyway, the cost of data recovery, the amount repair will cost compared with purchasing a new drive — determine whether you will come out of your first "crash" driving a racy new coupe or a reconditioned version of your faithful old standby. □

Just When The Competition Thought It Was Catching Up.



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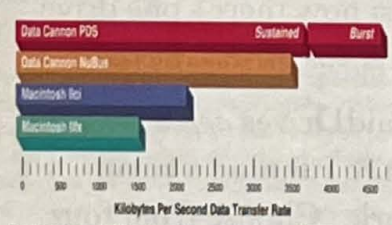

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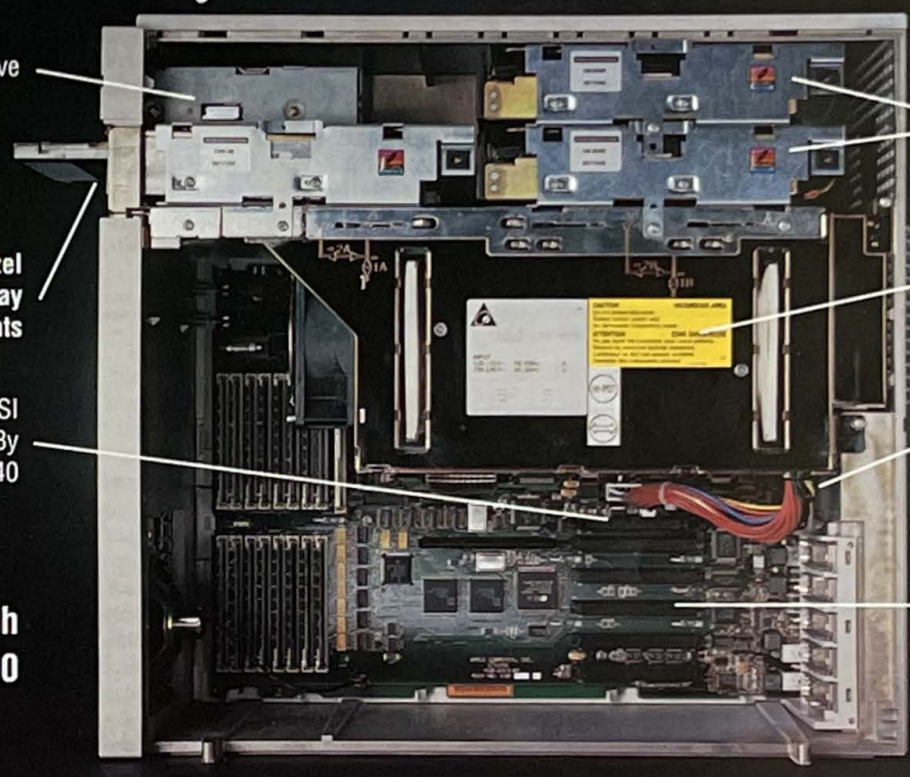
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EDITORIAL

A Mac is a Mac is a Mac . . .

Last week's introduction of the Macintosh PowerBooks once again demonstrates that for a hardware manufacturer, Apple sure makes good software.

The PowerBooks have a nice design. In the realm of notebook computers, they have some of the best power-management technology available.

And their ergonomics show that Apple can still build an attractive computer without compromising the machine's usability. Features such as the palm-rest area below the keyboard, feel of the keys, ambidextrous trackball and screen quality make the PowerBooks significantly more enjoyable to use than the vast majority of MS-DOS alternatives.

But superior physical design isn't what differentiates the PowerBooks from the competition. In fact, the Apple notebooks lack some features that are commonplace in the DOS world, such as gray-scale displays and built-in video-out. Overall, in terms of size, weight, performance and price, the PowerBooks break no new barriers for portable computing.

That's OK, because the PowerBooks do break one key barrier: They deliver the Mac experience on an easily portable platform.

As several Mac managers we've talked to have pointed out, the qualities that make the Mac better than a Windows-based system become even more pronounced on the road.

Users in the field don't have access to the support facilities that office-based workers take for granted. As a result, the complexities of DOS and Windows, which are only occasionally disruptive at the office, can become disastrous on the road. Not so with PowerBooks.

The PowerBooks also combine the Mac's easy networking with some powerful new communications abilities. With a built-in fax modem and AppleTalk Remote Access in hand, people in the field will find that their notebook has become a personal, portable communications appliance. And when users return to their offices, their PowerBooks integrate into networks as simply as their desktop machines.

Those are capabilities that DOS competitors can't easily match. But it's primarily software, not hardware, that makes those things possible. □

4 years ago in MacWEEK

Oct. 27, 1987: Microsoft Corp., in an attempt to duplicate in the low-end its success in the high-end word processing market, introduces Microsoft Write, a subset of Word at half the price.

In retrospect: Not everything touched by Microsoft turns to gold.

Letters

No need to be snobbish to those using System 6

Perhaps it's time for David Ramsey to rethink his conclusion that System 6 users are "mere grapes in the path of the steamroller of progress" (MacWEEK, Aug. 13).

Indeed? Well, I would suggest that he break out the wine glasses because he's going to be swilling a lot of new press. I run a 15-node network composed exclusively of 1-Mbyte Macs here at the university, and it will cost about $3,500 to upgrade them all to 4 Mbytes of RAM, plus another $2,000 to add hard disks to the 10 SEs in the mix that are currently floppy-based. I must depend on the university to increase our budget for this upgrade.

Ramsey needs to realize that not everyone who uses a Macintosh in a corporate-style setting has a corporate-style budget. So, unless he wants to put up the bucks (which would be fantastic; we'd even name the computer lab after him), he should knock off the patronizing, snide asides and continue to give System 6 users advice, tips and the help we need.

Karen Ferguson
Macintosh lab manager
School of Communication
The University of Akron, Ohio

CGM standard addresses graphic interchange

I am writing to you to express my outrage that MacWEEK has once again chosen to publish a feature article on graphical data exchange (see MacWEEK, Oct. 22) that failed to mention the excellent products that my company and many others sell.

There is no mention in this article about the Computer Graphics Metafile (CGM) standard, the International Standards Organization and American National Standards Institute standard exchange format for both vector and raster graphics data.

I am particularly angered that the boxes on Page 47 fail to list our GraphPorter and MetaPICT products and that the "current and emerging standards" box fails to list CGM.

CGM is easily the most widely used graphical data exchange format in the world. Hundreds of thousands of CGM files are generated and exchanged each day in the United States alone. Thousands of "early adopters" of leading edge technologies use our products successfully to exchange graphics with a wide variety of personal computer, workstation and mainframe products.

The ANSI and ISO committees have spent years addressing just the sort of interchange issues discussed in your article and have developed outstanding technical solutions to the problems described. It is indeed unfortunate that you ignore effective standardized solutions and focus instead on non-standard and over-hyped formats such as Encapsulated PostScript, DXF (Drawing Exchange Format), GIF, TIFF, RIB (RenderMan Interface Bytestream), PICS and PIL.

Steve Carson, Ph.D.
president
GSC Associates Inc.
Redondo Beach, Calif.

Carson is right: The CGM format and GSC Associates Inc.'s translation products should have been discussed in the article in question, and we apologize for the omission. With Macs moving increasingly into multiplatform environments in business and government, we, as will Mac graphics users, must look beyond the world of Mac-only formats and pay more attention to cross-platform standards such as CGM. Look for coverage of the new products GSC Associates announced this month in a forthcoming issue. — Ed.

By our calculations it's a bargain at half the price

One item in the article "Printers put the heat on imagesetters" (MacWEEK, Oct. 15) caught my attention in a big way. According to my calculations, with the "500 percent to 1,000 percent" cost savings, the printer will pay me between $5 and $10 for every dollar I spend on it.

This is certainly one purchase that I will have no difficulty justifying to our finance department!

Ted Grand
Mays Landing, N.J.

In response to your letter, we had our best mathematical minds run this complex problem through a variety of flashy spreadsheet models. The results indicate that we should have put our best mathematical minds on this problem prior to Oct. 15. Thanks for setting us straight. — Ed.

Send letters to MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105. MCI 323-1203; fax (415) 243-3650. Include your name, address and phone number. Letters should not exceed 300 words. We reserve the right to edit for clarity and length.

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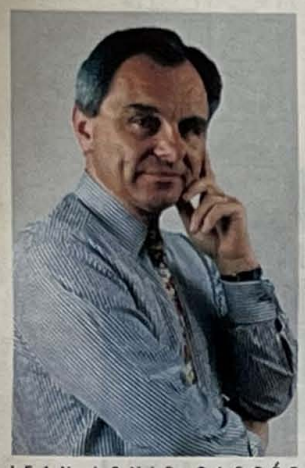
Commentary

Reading up: Here's two more for the desktop



JEAN-LOUIS GASSÉE

"American engineers, coupled with the American MBAs who manage most U.S. organizations, will ensure the continued decline of the information-processing industry, because this deadly duo focuses on the human organization (and especially its political structure), not on technology and product."

Is this a quote from Shintaro Ishihara's "The Japan That Can Say No," discussed in this column a few months ago? Is it another manifestation of mercurial Philippe Kahn's opinion of a well-known spreadsheet company on the East Coast? It is neither.

'High-Tech Ventures.' Gordon Bell wrote these lines at the end of "High-Tech Ventures, The Guide for Entrepreneurial Success," a book he co-wrote with John E. McNamara. Gordon is best-known for having worked 23 years at Digital Equipment Corp. as vice president of R&D, and for his more recent involvement with Stardent Computer Inc. and The Boston Computer Museum.

A "CEO book" this is not — no self-serving reflections on arduous but enlightening travails, no PR-department-polished gems of processed wisdom for the benefit of younger generations. "High-Tech Ventures" is a tool kit for assembling or testing a business.

Rules are proposed and justified, taxonomies are built, and do's and don'ts are outlined. The book is built around the Bell-Mason Diagnostic (and Prescriptive Method). Diagnostic results portrayed in a graph are laid out in clock-dial fashion, with four quadrants: Technology/Product, Marketing/Sales, People and Finance/Control. Each quadrant holds three subcategories, yielding 12 dimensions that are measured to assess the business at each of four stages: concept, seed, product development and market development.

As a reward for reading the book, you'll get to fly over four decades of the computer industry, guided by a distinguished mind. Few authors, indeed, can discuss microprocessors, supercomputers, personal computers, workstations and minis with such authority.

Reading Bell's book will, at times, arouse a healthy fear of kidding oneself amid a group of like-minded believers. Self- and collective delusion, in the last analysis, seem to be the ultimate killers, above lack of teamwork, cash or a good CEO. Examples abound, such as the introduction of a new computer without a floppy. Some might point this writer to a certain 14-pound portable Mac.

A minor quibble — the author refers to IBM Corp. as always dominating any area of computing it wishes to enter. I don't think Seymour Cray or William H. Gates III would agree with that perspective. All in all, "High-Tech Ventures" is a monumental but accessible opus that deserves a place on the bookshelves of entrepreneurs and corporate workers alike.

'Selling the Dream.' In the book's bibliography, Bell bestows a relatively rare combination of two distinctions on Guy Kawasaki's first book, "The Macintosh Way." He recommends that readers "own and read" the book, citing its expert advice and "sound rules by which to operate."

Well, Guy did it again. In fact, "Selling the Dream" is an even better book than "The Macintosh Way." And not just because it has much less inside-the-old-company stuff or skips vital topics, such as making presentations to difficult French executives. This time Guy uses examples outside the computer industry to illustrate the evangelism approach he himself evangelizes so effectively: a new approach to selling, turning your customers — and everyone else while you are at it — into converts.

I have read few books that are as well-organized and fun to read at the same time. And relevant. The typical chapter starts with an overview of the topic, proceeds to unfold clearly outlined how-tos and supplies rules of thumb, such as the following: "Five percent of your followers will deliver 95 percent of the results."

Problems? Not really. I just hope the meager Chapter 14, Evangelizing the Opposite Sex, will be excised from the next edition. The chapter adds little to the main topic of the book and risks casting an image of frivolity on an otherwise substantial book.

In keeping with the book's style, Guy also supplies a good bibliography and appropriately calls it Mental Floss. This one, too, deserves a place on your bookshelf. □

The Mac Manager

Obscure objects of desire: Dealing with OOP, OBS

I am an unabashed fan of object-oriented programming and object-based systems. For my money, these two technologies offer the best hope for computing in the '90s and beyond.

I've made my opinions known during the past few years and, not too surprisingly, I've received a lot of letters that either agree with me or tell me I'm crazy.

Recently, I got a couple of letters from computer managers that made me take a hard look at what I have been saying about OOP, OBS and all of my other obscure objects of desire.

The reason? Both letters brought home to me that the real costs and benefits of OOP and OBS are much more complicated than most of us recognize.

In short, both writers presented object-based systems from the Mac manager's point of view.

Moving to object-based systems. The most important issue to explore is why Mac managers should care about object-based systems. The answer depends on whether software is purchased off-the-shelf or developed in-house.

First, a look at store-bought software, since that comprises the bulk of systems at most Mac shops.

As one Mac manager pointed out, object-oriented programming creates applications that can be updated more quickly and with larger incremental improvements than can software written in procedural languages.

As a reality check, just look at the software written for the Mac, most of which is object-based. Most programs are smarter, easier to use and much more reliable than those available just a few years ago. And they manage this despite the fact they are much more complicated.

In-house equation. Naturally, we can assume that these advantages apply to all object-based systems, regardless of whether the software is developed commercially or in-house.

But as the other letter writer made clear, computer managers have to contend with an additional issue that blurs these clear-cut benefits.

That issue is overhead — the overhead of existing, non-OBS applications, the overhead of migrating to OBS applications and the overhead of host programmers unskilled in the arts of OOP.

How many work years does *your* shop have invested in non-OBS applications? Five years of programming? Ten? More? For many managers, the answer is so high that they gulp at the thought of such a transition.

I still say that OBS applications typically enable faster upgrades to in-house software, easier maintenance and better up-time performance. But you as a manager must ask yourself whether those benefits outweigh the overhead.

Managing the migration. Let's assume, though, that you decide an OBS would be sufficiently faster, sufficiently easier to maintain, sufficiently more reliable and sufficiently more extensible to be worth the cost.

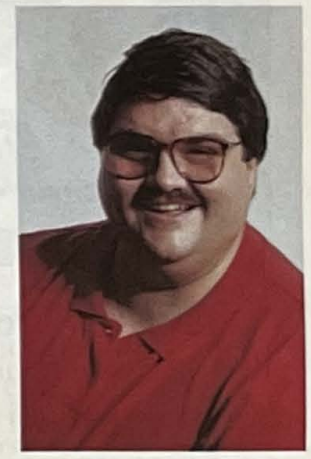
How do you proceed? Very cautiously.

The managers I talked with suggested three major steps:

- Review your current in-house software and remove non-essential or useless functions before redesigning it with object tools.
- Sort out all the dead code from the old system.
- Rethink all implementation issues in the new design, especially the interface.

To which I will also add these thoughts: First, train your developers, letting them cut their teeth on small systems before they tackle the conversion. Second, expect their current productivity to take a nose dive.

Above all, remember that in-house software tends to have a very long life. The number of viable RPG II and COBOL applications out there stand as silent testimony. □



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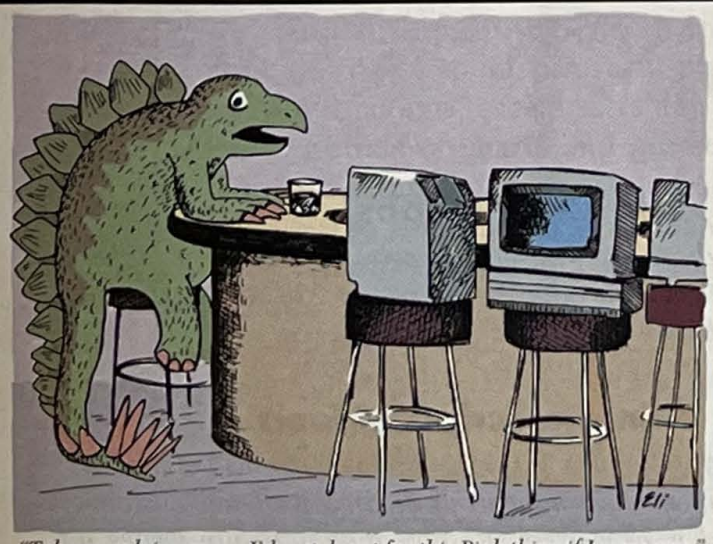

"Take my advice, guys. I'd watch out for this Pink thing if I were you."

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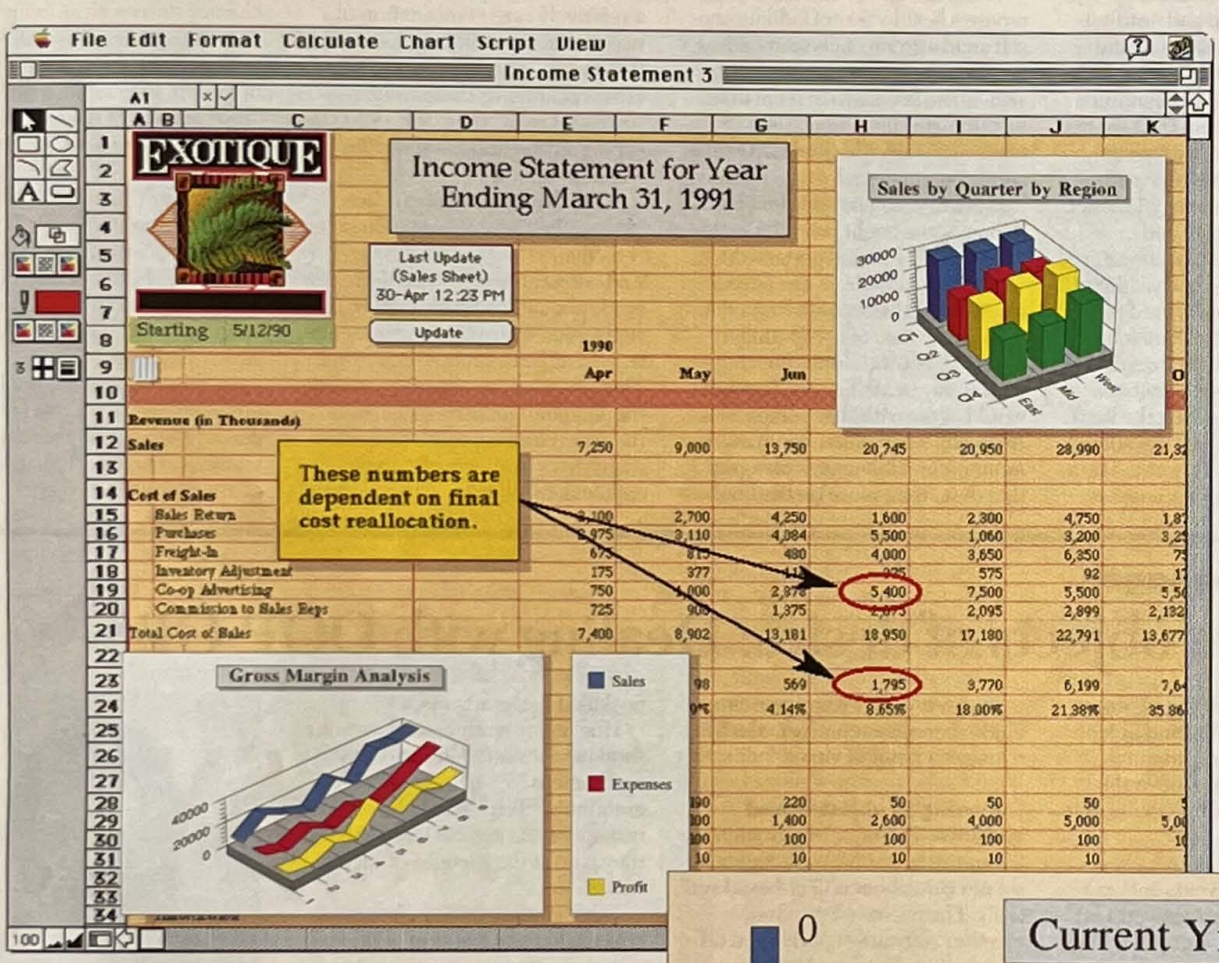

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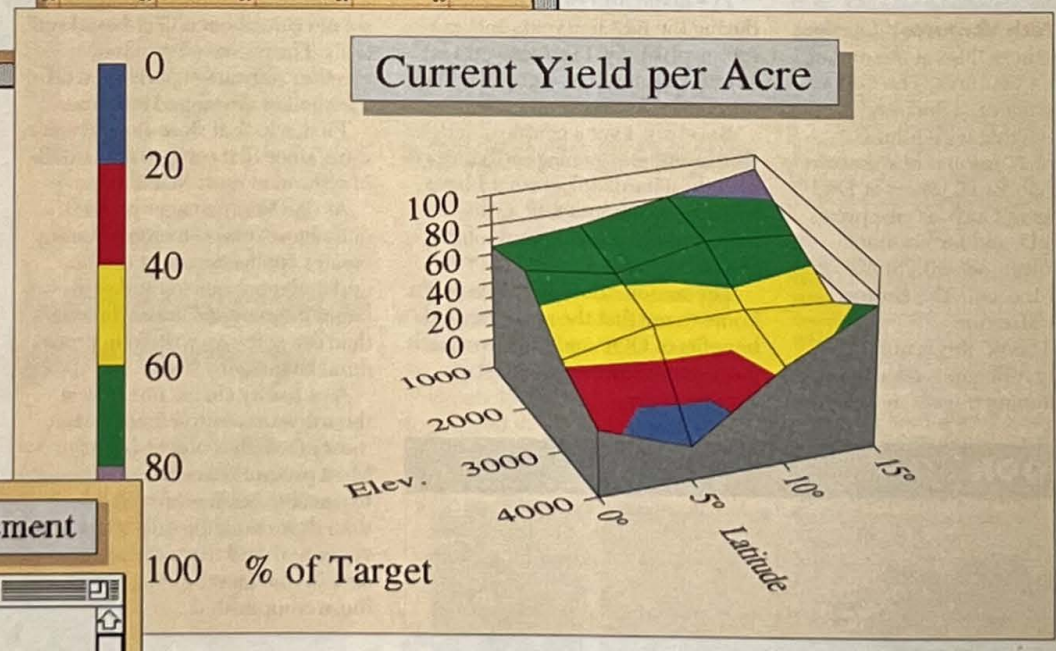

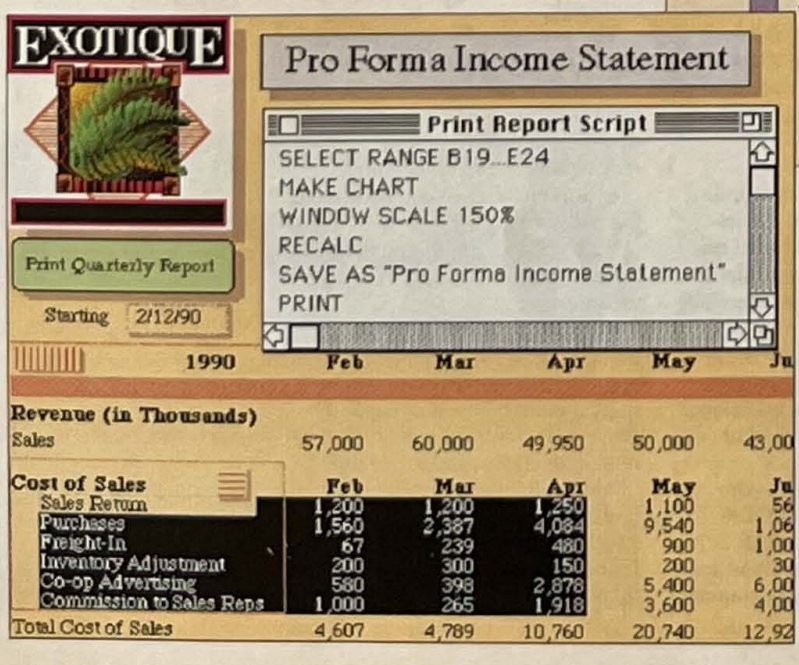

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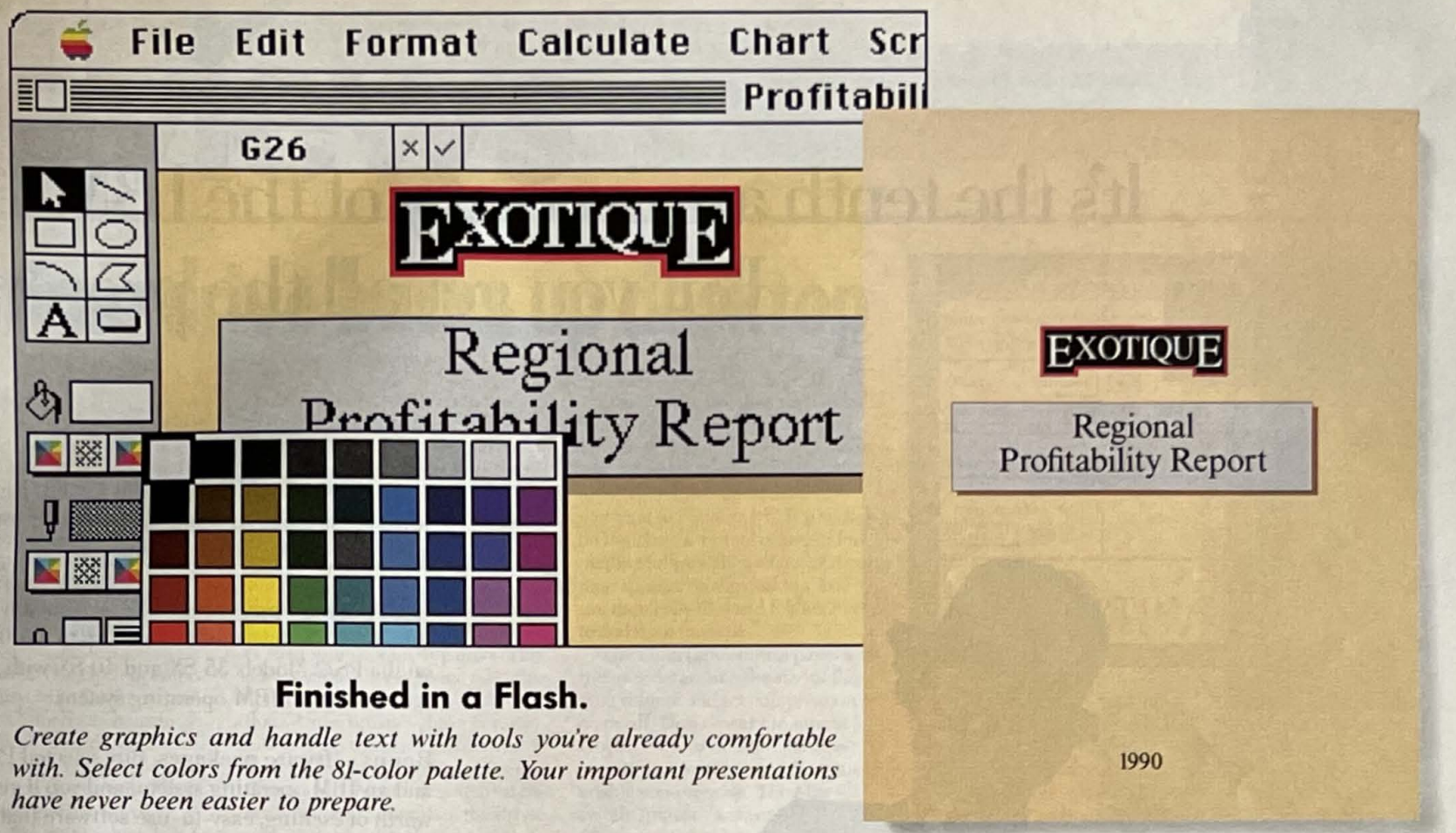

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But lurking just beneath the surface are enough tricks to inspire any power user. 149 built-in functions to help solve any business problem. 25 kinds of charts and graphs to excite the most jaded audience. Elegant, built-in database functions so you can swiftly access your data. And advanced analytical solutions to impress the math wizards.

Here's just one example of the outstanding design of Resolve. With Resolve, you can modify graphs directly in your spreadsheet. You don't have to switch back and forth between spreadsheet and chart modes. Think of the time savings. Not to mention the ease.

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Reviews

▸ In Brief: CheckList 2.0, Xstyle, Acta 7. See Page 39.

Optima drive backs up desktop

By Henry Norr

In an increasingly crowded field of digital audio tape backup systems, Optima Technology Corp.'s MiniPak 8000 offers several attention-grabbing extras: compression hardware that promises a dramatic increase in performance and capacity, and software that allows users to mount their tapes directly to the Mac desktop for easy backup and retrieval.

Hardware. The Optima unit is one of the first Mac DAT systems based on a 3.5-inch mechanism from Hewlett-Packard Co., one of the pioneers in DAT backup; most of Optima's competitors use Wang-DAT or Ardat mechanisms.

The MiniPak 8000, which lists for $4,495, also is one of only a handful of DAT drives on the market with hardware-based data compression. An HP compression chip on board enables the drive, at least in theory, to store up to 5 Gbytes of data on a standard (60-meter) tape and 8 Gbytes on the new extended-length (90-meter) tapes.

Optima also offers the $3,495 MiniPak 2000, incorporating the same drive but without hardware compression.

Optima's case measures 7.75 by 6.125 by 2.375 inches, slightly larger than some competing units. The power supply is a separate unit, the kind that ordinarily goes on the floor. Unfortunately, however, we had to keep the black box on our desk when using the drive, because Optima put the on/off switch on the power supply rather than the drive unit, and the cable that connects the two is only 3 feet long.

Two functions. The Optima drive comes bundled with two pieces of software: the company's own DeskTape control panel and a four-user package of Retrospect Remote, the network backup program from Dantz Development Corp. (Version 1.3 of Retrospect does not support the HP mechanism, but Optima bundles Version 1.3a, which does.)

Which software you are using determines how the drive functions. With DeskTape installed, newly formatted tapes mount on the desktop as almost-standard volumes; you can drag files to and from a tape's window in the Finder, but Retrospect won't recognize the tape as backup media. On the other hand, if DeskTape is not loaded, you can use Retrospect to back up and restore files in its own format.

A multigigabyte desktop. Optima is hardly the first company to try to make a tape device Finder-mountable. Vendors of first-generation DC-2000-format cartridge devices provided proprietary software that promised such a capability; Dantz developed a driver that did the same thing with several brands of drives and used to ship with DiskFit, then published by SuperMac Technology; and even Apple once produced software that let users mount tapes from its ill-fated Tape Backup 40SC drive.

None of these approaches succeeded in the market, fundamentally because DC-2000 tape technology did not offer sufficient speed. But with a mechanism that can transfer data at up to 732 Kbytes per second and find any file on the tape in an average of 20 to 30 seconds, Optima chose to try again. The result is a near-line storage system with many limitations but some real appeal.

Once you've installed the DeskTape software, inserting a tape in the MiniPak drive brings up a dialog with a special tape icon but familiar text: "This disk is unreadable. Do you want to initialize it?" If you click on initialize, a minute or two of formatting follows, then a new tape volume appears on the desktop. You can then copy files and folders freely to and from the tape.

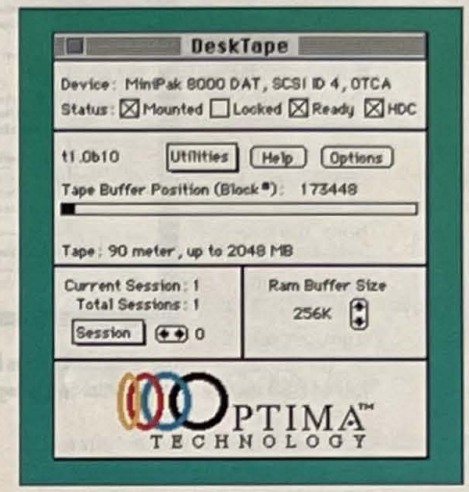
The DeskTape control panel lets the user determine the size of the tape volume and set compression on or off. Don't expect to mount 8 Gbytes on your desktop, however, even if you use 90-meter tapes and enable compression: The Mac file system imposes a maximum of 2 Gbytes on any volume.

Moreover, tapes fill up faster than you might expect. On a 2-Gbyte volume, even the tiniest file — a one-character, one-byte text file, to take an extreme example — requires 33 Kbytes of "disk" space. The problem is not Optima's doing; again, it's a function of the Mac file system.

Throwing obsolete files in the Trash won't help you recover space, either — if you do, the file's icon disappears from the Finder window, but there is no practical way to reuse the space filled by a deleted file unless you erase the entire tape.

The system works by creating a directory for the tape volume on your hard disk. Optima said it uses

See Optima, next page



Optima's DeskTape software allows the MiniPak 8000 to appear as a disk drive on the desktop. Other settings are determined through this control panel. Tape capacity depends on whether or not the drive's hardware compression is enabled through on-board DIP switches.

SCORE CARD
Optima MiniPak 8000

MacWEEK

Overall value	◉
Performance	●
Features	◉
Installation/configuration	○
Compatibility	◉
Documentation/support	⊙
List price	$4,495

● Excellent ◉ Very good ◉ Good
⊙ Average ○ Below average

ON BALANCE
MiniPak 8000
Optima Technology Corp.

MacWEEK

Built-in compression and software that lets you mount a tape on the desktop make the MiniPak 8000 stand out from the crowd in the DAT drive market. We experienced some annoying setup glitches, mainly because of inadequate documentation and the limited support currently provided by the bundled backup software, Dantz Retrospect. But Optima's DeskTape software provides convenient storage, and the unit delivers excellent performance.

QuickSCSI picks up a little speed for the Mac

PLI's NuBus card is latest contender

By Dan Magorian

Many people want faster hard disk performance; they want fast access times and data throughput comparable with what's available in the Unix and mainframe world. Some of these improvements can be had now using third-party SCSI controller cards that implement portions of the SCSI-2 specification. (For more information on SCSI-2, see the Special Report on mass storage in this issue.)

PLI's QuickSCSI NuBus card is one of the latest contenders in this rapidly changing market. Similar cards by MicroNet Technology Inc., Storage Dimensions Inc. and FWB Inc. compete hotly on performance and features, including who has the latest NCR Inc. SCSI chip and firmware.

PLI says its QuickSCSI will improve your Mac's SCSI performance by up to 400 percent. For $599 ($399 when purchased with a PLI drive), QuickSCSI is sure to attract power users with the lure of speed. PLI is quick to state, however, that QuickSCSI will not speed up any drive, just fast drives. To check out these claims, we tested the QuickSCSI card in several configurations (see table, Page 39).

How does it work? Essentially, the QuickSCSI hardware is a SCSI controller chip that is supplementary to the one on the Mac II motherboard, bundled with firmware and software that enables the Mac to recognize the second SCSI bus and mount drives on it. This has the additional benefit of allowing 14 instead of seven SCSI drives on-line at a time, although the QuickSCSI chain can handle only disks. The NCR 53C94 SCSI chip used in the card implements only some of the SCSI-2 extensions, in particular synchronous data transfer. This allows four signal transitions per eight-bit transfer, up to the maximum sustained 4.4 Mbytes per second. By comparison, the original Mac SCSI chip effectively achieves about 1.5 Mbytes per second. Later chips, such as NCR's 53C720, support more SCSI-2 modes, such as Fast SCSI, which offers transfer rates up to 20 Mbytes per second, and Wide SCSI, which uses a 16- or 32-bit data bus instead of the normal eight-bit one.

Of course, disk drives are the limiting factor here: Unless they can negotiate the higher speed with the host SCSI-2 chip, they fall back to compatible SCSI mode with no improvement, as we found in the benchmarks. In particular, drives capable of 20 Mbytes per second are a ways off, and manufacturers are having trouble finding room on

See QuickSCSI, Page 39

SCORE CARD
QuickSCSI

MacWEEK

Overall value	◉
Performance	◉
Features	⊙
Installation/configuration	◉
Compatibility	◉
Documentation/support	⊙
List price	$599*

● Excellent ◉ Very good ◉ Good
⊙ Average ○ Below average

*$399 when purchased with a PLI drive.

ON BALANCE
QuickSCSI
PLI

MacWEEK

QuickSCSI is one of a new generation of retrofit SCSI drive enhancers that bring some SCSI-2 extensions to Mac IIs, but not full SCSI-2 compliance. When coupled with a fast drive, it can speed up large transfers significantly. However, when used with medium-speed drives, QuickSCSI slows performance, and overall it is not a general-purpose speed enhancer for all drives. The manager software is serviceable, but the interface needs some work.

Optima

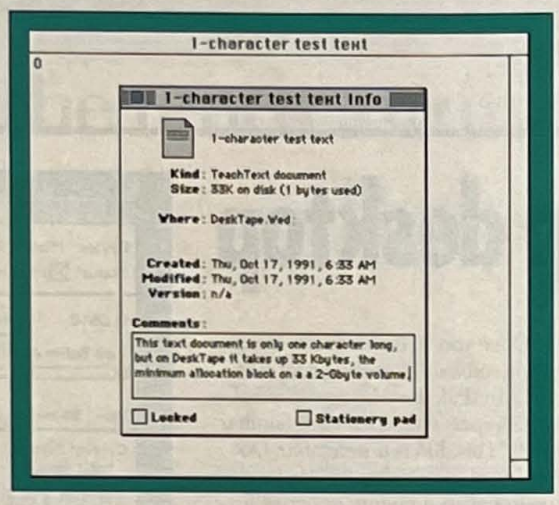
From previous page

2.5 to 5 Mbytes of contiguous disk space for the directory; for the 2-Gbyte volume we used, the file took 5 Mbytes. All changes to the tape volume are first entered in this directory on the hard disk; only when you unmount the tape is the directory copied over to it.

Since neither directory files nor anything else copied to the tape is truly removed until the tape is erased, you can go back to a previous state of the tape simply by selecting any past session from a pop-up menu in the DeskTape control panel. It's not a feature you are likely to use often, but it means you lose only the current session's files if a system error occurs before the directory is copied to tape, and it could be a lifesaver if you need to recover an inadvertently deleted file.

Optima touts its system as offering speeds close to those of a hard disk. Our tests, using a fast 1-Gbyte Wren drive, essentially bore out those claims, at least for copying files to the tape. Copying a 13.37-Mbyte database to the tape in Finder 7.0 (where Optima says the system works best) took one minute and 14 seconds with compression on, compared with one minute and 24 seconds to copy the file to another partition on the same disk. (Curiously, using CE Software Inc.'s DiskTop 4.0.1 to bypass the new Finder's slow copying routine cut the time required on both volumes but reversed the performance rankings: Copying to tape took 51 seconds, while copying to disk required only 20 seconds.)

Retrieving files from the tape may take substantially longer, however, because the drive has to rewind the tape to reach the desired file. Even though the HP drive repositions itself at 200 times the speed of read-write operations, the process can still take a significant amount of time, depending on the number of files on tape and the position of the file you are after.


1-character test text
1-character test text Info
1-character test text
Kind: TeachText document
Size: 33K on disk (1 bytes used)
Where: DeskTape:Wed:
Created: Thu, Oct 17, 1991, 6:33 AM
Modified: Thu, Oct 17, 1991, 6:33 AM
Version: n/a
Comments:
This text document is only one character long, but on DeskTape it takes up 33 Kbytes, the minimum allocation block on a a 2-Gbyte volume.
Locked
Stationery pad

One of the quirks of the MiniPak 8000 is that minimum file size is set by file allocation formatting: A one-byte file occupies 33 Kbytes on the tape.

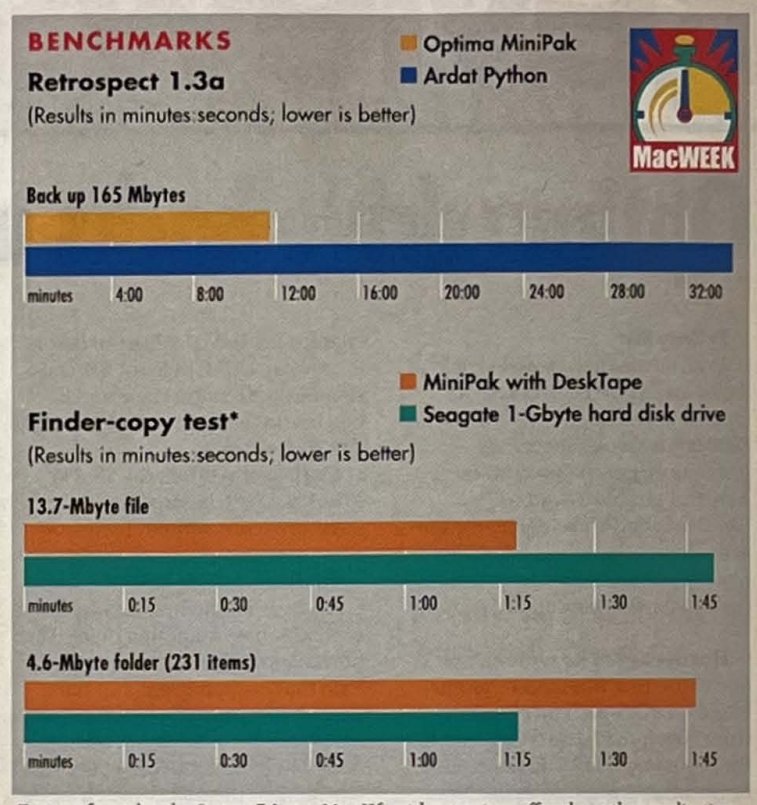
DeskTape will slow you down in some other ways, too. Booting and shutting down take appreciably longer; canceling an operation or recovering a file from the Trash can take minutes; and using Get Info on a large folder is interminable.

The list of limitations in Optima's manual is substantial. The company does not recommend launching applications or documents from tape, rebuilding the desktop on a tape volume, or publishing a tape volume over a network for write operations. In addition, Optima discourages users from saving directly to tape from applications: Some applications, according to the company, save files in a way tape can't handle.

In short, DeskTape doesn't deliver the speed and flexibility of a hard disk. Nor is it, by itself, a substitute for a real backup system, although you could use a mounted tape volume as a destination for Magic Software Inc.'s Backmatic or other backup software.

What DeskTape does offer is convenient, capacious and relatively quick near-line storage — a place where you can simply drag a file or folder when you want to get it off your hard drive but still keep it handy. You could, of course, achieve the same result with Retrospect's archiving function, or with a removable cartridge or floppy disks. But DeskTape offers easier access than the former approach and far more room than the latter.

Performance. Using a Mac IIfx under System 7.0, we first tested the MiniPak 8000 with Retrospect, comparing its performance with that of a DAT drive from Relax Technology Inc., which incorporates an Ardat Python mechanism without hardware compression.


BENCHMARKS
Optima MiniPak
Ardat Python
Retrospect 1.3a
(Results in minutes:seconds; lower is better)
MacWEEK
Back up 165 Mbytes
minutes 4:00 8:00 12:00 16:00 20:00 24:00 28:00 32:00
MiniPak with DeskTape
Seagate 1-Gbyte hard disk drive
Finder-copy test*
(Results in minutes:seconds; lower is better)
13.7-Mbyte file
minutes 0:15 0:30 0:45 1:00 1:15 1:30 1:45
4.6-Mbyte folder (231 items)
minutes 0:15 0:30 0:45 1:00 1:15 1:30 1:45

Tests performed under System 7.0 on a Mac IIfx with extensions off and no other applications running.

Getting the MiniPak's compression hardware to work under Retrospect was a hassle (see story, below). But once we solved that problem, the results were clear-cut: The Python is a speed demon compared with most tape systems, but the MiniPak 8000 left it in the dust.

Backing up a 21.8-Mbyte folder containing a mixture of applications and data files, for example, took two minutes and seven seconds on the Optima drive. The Python needed four minutes and four seconds to back up the same folder when Retrospect's compression option was shut off and five minutes and 21 seconds with software compression enabled. (In each case, we backed up the folder three times and averaged the results. We did not count the time required to click through Retrospect's several setup screens.)

With larger backups, the pattern was the same, but the absolute savings in time were, of course, much more striking. Backing up a hard disk partition with 2,356 files totaling 165 Mbytes took 11 minutes and 57 seconds on the MiniPak 8000. On the Python, the same job required 23 minutes and 22 seconds with Retrospect's software compression disabled and about 34 minutes with compression on.

Since we didn't take the time to fill up a DAT, we had no way of determining precisely the compression efficiency of the Optima hardware, because neither the Finder's nor Retrospect's size information reflects the results of hardware compression.

But comparing the drive's performance with compression on and off suggests a ratio of about 2-to-1. That would indicate maximum capacities of about 2.5 Gbytes on 60-meter tape and 4 Gbytes on extended-length DAT. That's far short of the marketing hype surrounding the drive, but plenty of room for most purposes, especially considering that additional tapes cost only $20 to $30.

Conclusions. In our testing, DeskTape worked basically as documented, and it's a nifty trick, despite its limitations. Users who have to switch frequently among files too large to keep on-line at once will appreciate the convenience of having 1 to 2 Gbytes of near-line capacity. So will those who are committed to backing up but never seem to remember. With your backup media on the desktop, remembering ought to be much easier.

For network managers and most users, however, we suspect that DeskTape will be a less important selling point than the sheer capacity and speed of the drive. If you do your backing up at night or in the background, and you're not constrained by the capacity limits of non-compression DAT drives, it might not be worth paying the premium for Optima's 8000 model. But if you want to pack more on a single cassette, especially if you want to get your backups completed as quickly as possible, the MiniPak 8000 is an attractive option.

Optima Technology Corp. is at 17526 Von Karman, Irvine, Calif. 92714. Phone (714) 476-0515; fax (714) 476-0613. □

SYSTEM 7 COMPATIBILITY

Optima DeskTape	
Balloon help	No
TrueType	n/a
Publish and subscribe	n/a
Apple events	No
32-bit addressing*	Yes

**According to vendor*

Checking out DAT compression a monumental task

The compression capability built into Optima Technology Corp.'s MiniPak 8000 is its most powerful feature, but figuring out how to use it proved a monumental hassle.

The unit we reviewed came with two manuals: one for the DeskTape software and one for the company's other tape subsystems. While parts of the generic hardware manual did apply to the MiniPak, it made no reference to the compression feature. The software manual explains how to enable compression for use with DeskTape, but it says nothing about enabling it for use with Dantz Development Corp.'s Retrospect, which also is included with the drive. Neither does Dantz's manual.

With nothing else to go by, we assumed the Compression check box in Retrospect would start the Optima drive's compression hardware. Several test runs in which the Optima drive showed no advantage in performance or file size indicated that compression wasn't working.

Since it was a weekend and no one answered the phone at Optima, we tried to log onto the company's support bulletin board but repeatedly lost the connection. Then we tried to send a message over AppleLink, only to discover that the address printed in the manuals is no longer valid; AppleLink's Find Address command turned up no reference to the company. (The account appeared several days later. The company blamed the problem on a mix-up at Apple.) Finally we sent a message to the CompuServe account also listed in the manual.

The following morning we talked to an Optima engineer and received a response on CompuServe: Initial shipments of the MiniPak 8000 had gone out with DIP switches set to disable compression.

The current version of Retrospect, the Optima representatives said, can't enable the compression chip, but the DeskTape control panel can. Since Retrospect can't be used while DeskTape is loaded, they suggested that we run DeskTape and make sure hardware compression was enabled, then (without shutting off the drive) reboot the Mac without DeskTape.

That work-around didn't seem to get us around the problem, however, so we finally opened the MiniPak case and reset the DIP switches, following instructions sent via CompuServe. But even that seemed fruitless: Performance and archive size remained far short of our expectations, even though both DeskTape and Retrospect indicated that compression was enabled.

One more call to Optima technical support to review our settings in detail revealed the root of the problem: We had left Retrospect's Compression check box checked. In fact, we learned that this enables Retrospect's software compression, effectively negating the benefits of the hardware built into the drive.

Bottom line: To get compression when using Retrospect, you uncheck the program's Compression option (while of course making sure that DeskTape's Compression check box was checked the last time you ran that software).

A future version of Retrospect will probably have meaningful controls for the hardware compression. In the meantime, Optima promised to explain the issue in its documentation. — *By Henry Norr*

QuickSCSI

From Page 37

their drives for Wide SCSI's second SCSI-2 connector.

Despite these technicalities, the QuickSCSI card is simple to install and get working. Plug it in and connect the supplied SCSI-2 system cable to any external drives.

For internal drives, disconnect the SCSI ribbon cable from the Mac motherboard and connect it to the card instead.

Drives do not yet use the new, smaller 50-pin SCSI-2 connector, so external SCSI-to-SCSI cables and terminators are the same.

Drop the two QuickSCSI extensions into the System folder and restart.

Managing the new SCSI chain. No new disk driver or reformatting is needed, although PLI supplies two applications (QuickSCSI Formatter 1.1 and QuickSCSI Manager 1.1) for formatting and managing drives on the QuickSCSI chain, since they are now inaccessible from regular SCSI utilities. These applications are serviceable but suffer from a rudimentary interface; for example, the formatter doesn't let you know whether initializing will take seconds or hours, and the manager hangs if the extensions aren't loaded. The programs have essentially the same functionality as PLI's TurboDrive formatter.

The manager is used most to change the start-up device or force-mount drives that don't show up on the desktop. It also has the interface to QuickSCSI's second main feature: drive mirroring.

This lets you automatically write all data to a second drive at almost the same time as the first, providing a continuous backup. We tried this and it worked: The backup drive disappeared from the desktop, and both contained identical data.

It's important, however, not to confuse simple disk mirroring with fault-tolerant disks.

Fault tolerance goes well beyond backup by providing automatic error recovery, and at least tries to handle problems gracefully. If you simulate a crash by turning off QuickSCSI's primary mirrored disk in midoperation, the Mac crashes and the two disks have to be resynced by turning off mirroring and cloning one from the other, a tedious operation that could take a long time for big disks (during which the system is unusable). This is not discussed in the bare-bones documentation.

Considering the cost of the second disk and the infrequency of crashes, most sites probably will use one of the popular new digital audio tape drives instead (with which they can also back up local user drives) unless they have critical data.

QuickSCSI also comes with PLI's TurboCache utility, which turns as much memory as you want into one of three kinds of disk cache. Some benchmarks showed that this does improve performance, at the expense of application memory. However, since it works with any drive irrespective of QuickSCSI, is similar to several shareware utilities and shares functionality with Apple's system cache, it was not reviewed formally.

We tried the QuickSCSI card with seven different disks connected to both a Mac II and a Mac IIfx. Because of the similarity of benchmark results, we boiled them down to three typical drive types: a standard 3.5-inch medium-performance Quantum mechanism found in many Macs today; a 5.25-inch external Imprimis mechanism typical of good-performance drives; and a 5.25-inch external Seagate Elite mechanism that is one of the fastest drives available.

Two benchmarks were used: Roger Bates' TimeDrive (an application bundled with many drives) for access speed and transfer rates; and Finder file duplication, which represents activities visible to users.

The results clearly show that QuickSCSI speeds up only fast drives and really only on long sustained transfers. Most disk activity on Macs consists of reading and writing small resources, for which access time is more important than transfer speed. This is represented by the first two user benchmarks: reading and writing a folder full of small files, and an occasional medium-size file.

Transferring large databases or image files is represented by the third benchmark, reading and writing a big QuickTime file.

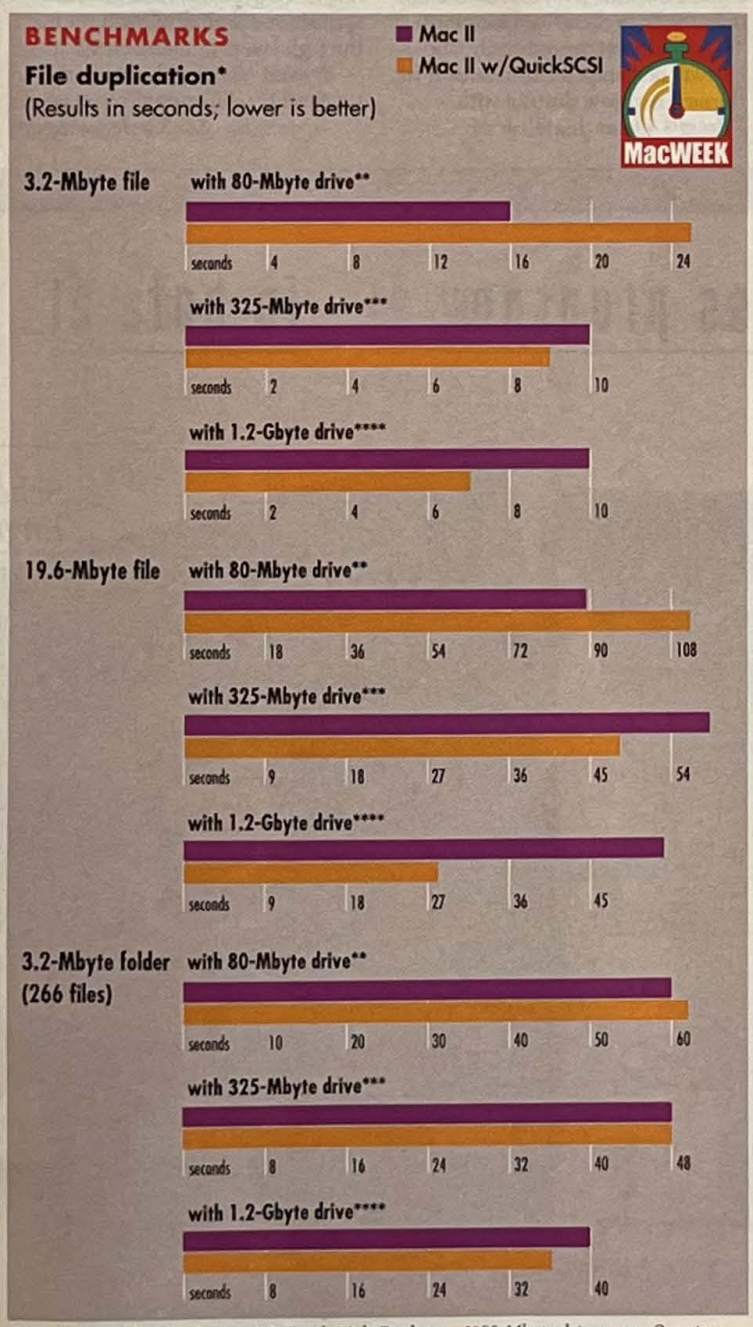
Note that only here does QuickSCSI start to show significant speedup, and still nowhere close to what the raw transfer rates indicate. Another effect that PLI needs to investigate is the significant speed decreases on the slower Quantum drive, which were repeated on two other Apple drives and a IIfx.

Conclusions. Clearly, QuickSCSI is not a general-purpose speed enhancer for all drives. In fact, the current version seems to make many medium-performance drives even slower.

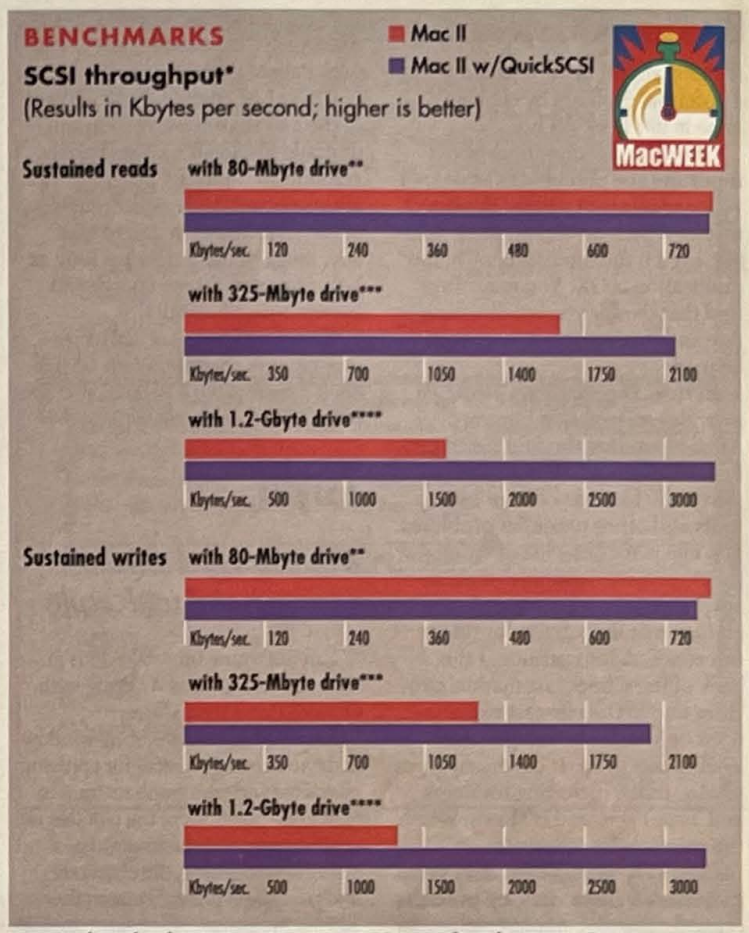
But it does make sense when purchasing a $7,599 top-of-the-line drive to spend $399 more to enhance its performance.

Overall, given the evolution to SCSI-2 in the Mac world, retrofit cards such as QuickSCSI are a trend that will make increasing sense as less-expensive faster drives evolve.

PLI is at 47421 Bayside Parkway, Fremont, Calif. 94538. Phone (510) 657-2211 or (800) 288-8754; fax (510) 683-9713. □


BENCHMARKS
File duplication*
(Results in seconds; lower is better)
Mac II
Mac II w/QuickSCSI
MacWEEK
3.2-Mbyte file
with 80-Mbyte drive**
seconds 4 8 12 16 20 24
with 325-Mbyte drive***
seconds 2 4 6 8 10
with 1.2-Gbyte drive****
seconds 2 4 6 8 10
19.6-Mbyte file
with 80-Mbyte drive**
seconds 18 36 54 72 90 108
with 325-Mbyte drive***
seconds 9 18 27 36 45 54
with 1.2-Gbyte drive****
seconds 9 18 27 36 45
3.2-Mbyte folder (266 files)
with 80-Mbyte drive**
seconds 10 20 30 40 50 60
with 325-Mbyte drive***
seconds 8 16 24 32 40 48
with 1.2-Gbyte drive****
seconds 8 16 24 32 40

*Tests performed under System 6.0.7 with MultiFinder on. **80-Mbyte drive was a Quantum P80S. ***325-Mbyte drive was an Imprimis 94241. **** 1.2-Gbyte drive was a Seagate II 41600N*


BENCHMARKS
SCSI throughput*
(Results in Kbytes per second; higher is better)
Mac II
Mac II w/QuickSCSI
MacWEEK
Sustained reads
with 80-Mbyte drive**
Kbytes/sec. 120 240 360 480 600 720
with 325-Mbyte drive***
Kbytes/sec. 350 700 1050 1400 1750 2100
with 1.2-Gbyte drive****
Kbytes/sec. 500 1000 1500 2000 2500 3000
Sustained writes
with 80-Mbyte drive**
Kbytes/sec. 120 240 360 480 600 720
with 325-Mbyte drive***
Kbytes/sec. 350 700 1050 1400 1750 2100
with 1.2-Gbyte drive****
Kbytes/sec. 500 1000 1500 2000 2500 3000

*Tests performed with Roger Bates' TimeDrive 1.3 **80-Mbyte drive was a Quantum P80S. ***325-Mbyte drive was an Imprimis 94241. **** 1.2-Gbyte drive was a Seagate II 41600N.*

IN BRIEF

- CheckList 2.0
- Xstyle
- Acta 7

CheckList 2.0

Utility reads PageMaker files, produces reports

ElseWare Corp.'s CheckList 2.0 is a utility that reads PageMaker 4 files and produces printed reports on fonts and graphics in the file. The reports highlight potential problems — missing fonts or linked graphics (images not stored in the PageMaker file), fonts that have false type styles applied (italicized Zapf Dingbats, for example), or the presence of fonts in both PostScript and TrueType formats. CheckList also will read Encapsulated PostScript or print-to-disk PostScript files created by most other Macintosh applications and will produce similar reports.

CheckList permits you to embed a non-printing electronic note for the output operator and will bundle the PageMaker publication, required fonts and other necessary elements into an auto-expanding compressed file for transmission to the service bureau. For PageMaker files, the reports also list styles and linked text and graphics items, and you can change print options without opening the PageMaker file.

The utility's primary function is to warn a user of potential font- and link-related output problems, and it does a good job of that. The first time you launch CheckList (or at other times, depending on how you set up the Preferences file), it searches for fonts in the system, on open suitcases on your primary hard disk (and on any other disk that contains open suitcases, if you want) and in the currently selected printer. If you obtain your service bureau's Aldus Printer Description (APD) file and select the appropriate imagesetter in the Chooser before running CheckList, the program will base reports on the service bureau's equipment and tell you accurately which additional fonts must accompany the publication file.

When you open a document, CheckList presents a summary of the categories it reports on: fonts (including fonts in placed graphic files), print settings, links, styles and embedded notes. If all is well, a check mark appears next to each item. Otherwise, you can see a

See CheckList, next page

CheckList

From previous page

detailed report on any category with a potential problem by clicking once in its check-off box.

CheckList is scrupulous about reporting any potential trouble spot — for example, it will list imported text for which the linked file is missing, even if the internal copy in the publication is OK. You may often find that the file you are checking is fine and that no corrections need to be made.

Besides the reports, CheckList provides several side benefits. After compiling the font list, it produces a diagnostic report that shows the location of duplicate fonts and other potential problems. You can print out a list of style sheets or linked graphics used in any PageMaker document for inclusion in the job file for future reference. A font primer at the back of the CheckList manual provides one of the clearest explanations of Mac font management available in print. It covers all types of Mac fonts, including bit maps and TrueType, and is almost worth the price of the software.

CheckList is an elegant tool for graphic designers, desktop publishers and other document creators, as well as service bureau operators. It saves time, money and output material, and it provides useful management tools for fonts and documents, especially those created with PageMaker 4.

CheckList costs $179.95. Owners of the $45 shareware version can upgrade for $89.95. (ElseWare is running an "amnesty program" that allows currently unregistered users of the shareware version to take advantage of this pricing as long as both transactions are completed before Nov. 25, 1991.)

ElseWare Corp. is at 3201 Fremont Ave. N., Seattle, Wash. 98103-8866. Phone (206) 547-9623; fax (206) 632-7255. — *By Kathleen Tinkel*

Xstyle

XTension gives Quark users a hand with style

Em Software Inc.'s Xstyle is an XTension that eases working with QuarkXPress style sheets.

Xstyle adds a style-editing window and two floating palettes for applying character and paragraph settings to text. (The positions of the palettes are retained with the document.)

Locked together, the character and paragraph palettes match the XPress Measurements palette in size and shape, and fit tidily just below or, on a wide display, next to it. This is important because adding these windows makes the XPress screen cluttered. If you prefer not to have so many objects on screen, Em provides a hot-key function that brings up Xstyle's windows when needed and puts them away again automatically. The character and paragraph palettes also can be separated, if you prefer to have them float apart on the screen.

Like the standard XPress palettes, Xstyle windows use tiny type and small intricate icons — you may need to memorize functions by their location because some are difficult to decipher.

Xstyle has a logical Mac interface. In general, you can work out how to achieve anything by just poking around in the windows. You can perform virtually every function from the keyboard for fast, mouse-free operation.

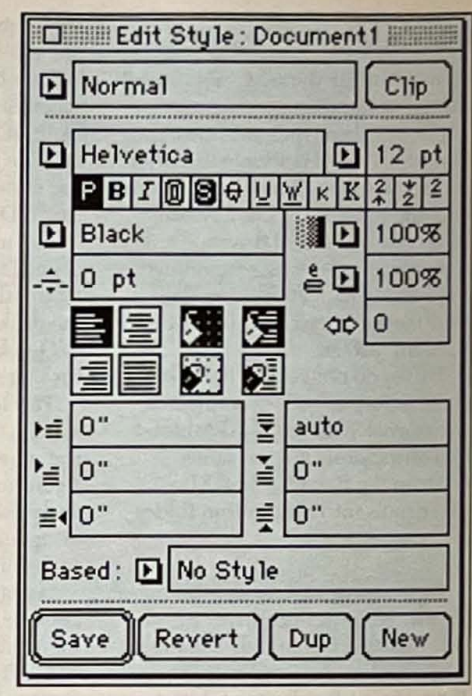
The utility includes a special clipboard that stores up to 10 styles that can be applied with a mouse click in any other open document.

Em Software will automatically mail a free upgrade to all registered Xstyle owners when XPress 3.1 comes out. The updated version will include Style Reporter, which produces a listing of all style sheets in use in one or a selected set of documents.

Xstyle has very few drawbacks. Its style-editing window does not enable you to spec XPress' Drop Caps, Keep Lines Together or H&J options, along with a few other features, for which you still need the dialog boxes in the XPress menus. These were omitted to keep the window small, according to the developer, and may be added in a future version.

As a work-around, you can use XPress to establish a root style that includes custom H&J settings, a drop cap or another of the omitted specs. Then any subsequent style based on it will include those settings. In any event, the XPress menus are always available, and changes made there are immediately reflected in the Xstyle windows.

You cannot change an existing style's name in the Xstyle Edit Style window; to do this you must use XPress' Style Sheets option from the Edit menu.



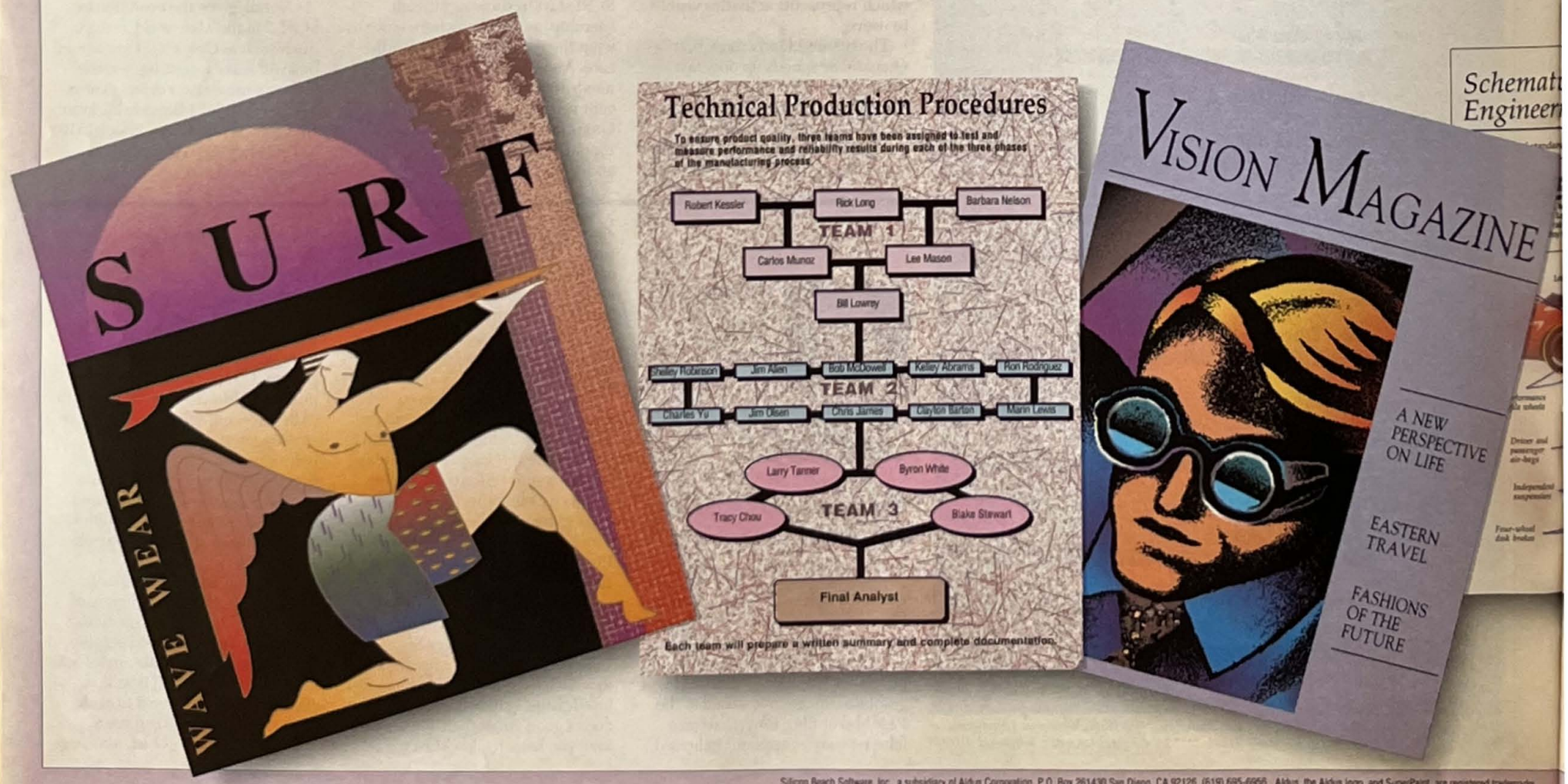
Xstyle's Edit Style window allows you to create and modify QuarkXPress style sheets quickly and easily.

If you set up a document on a large screen and then move it to a smaller one, the palettes will remain out of sight in their fixed locations. They can be recovered easily, and this will be handled automatically in the next revision, due out with XPress 3.1 later this fall.

If you use the XPress style sheets (and you ought to if you're using the program), you ought to be using Xstyle. In practice, its drawbacks are minor. Compared with wading through layers of menus in XPress — or even compared with using the StylePro XTension from Data-

See Xstyle, next page

It's a graphics program. It's a business program. Is not.



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Xstyle

From previous page

Stream Imaging Systems Inc. of Lexington, Ky. — it saves a great deal of time and irritation.

Xstyle costs $79 and is available from Em Software directly or through XChange Inc., a distributor of Quark XTensions based in San Francisco.

Em Software Inc. is at P.O. Box 402, Westbrook, Conn. 06498-0402. Phone (203) 399-8472 or (800) 253-8472 ; fax (407) 321-4724. — *By Kathleen Tinkel*

Acta 7

Outliner update adds System 7 features, sound

Symmetry Software Corp.'s $149 Acta Advantage has taken a small but significant System 7-savvy step. The evolutionary new version, Acta 7, adds support for sound annotation, phone dialing, TrueType fonts, stationery documents, balloon help, and publish and subscribe to the popular outliner application and desk accessory combo. The old, reliable Acta functionality is still there, since most changes are literally grouped into the Edit menu. Acta 7 continues the tradition of fast, intuitive and simple outlining it pioneered six years ago.

The new version adds many screen-formatting niceties. We immediately noticed the color text and triangular topic markers whose behavior mimics the new Finder's outline view. But the comfy Acta environment has been preserved. Navigating within an outline is the same as in the past. A tiny new flag alerts the user to a sound note attached to a topic, and a double-heavy or triple-heavy border means that topics are part of publish and subscribe editions.

Publish and subscribe expand Acta's power considerably. Subscribers can be text, graphics or sound. An outline can be made up only of subscribers; as individual publishers change, this outline changes too.

As in the previous version, Acta Advantage 1.04, Acta 7 runs nicely on an 8-Mbyte Mac IIci under both System 6.0.7 and 7.0; it also works well on a 5-Mbyte IIsi and System 7.0. Subscribers updated exactly as we expected, whether in the same folder, on another hard drive or across the Ethernet network.

Symmetry still bundles the Acta desk accessory. The new version, 3.02, is functionally identical to the Acta DA accompanying Acta Advantage. It runs under System 7, but it is not worth installing it with that version of the operating system; although it reads Acta files correctly, it lacks the new features.

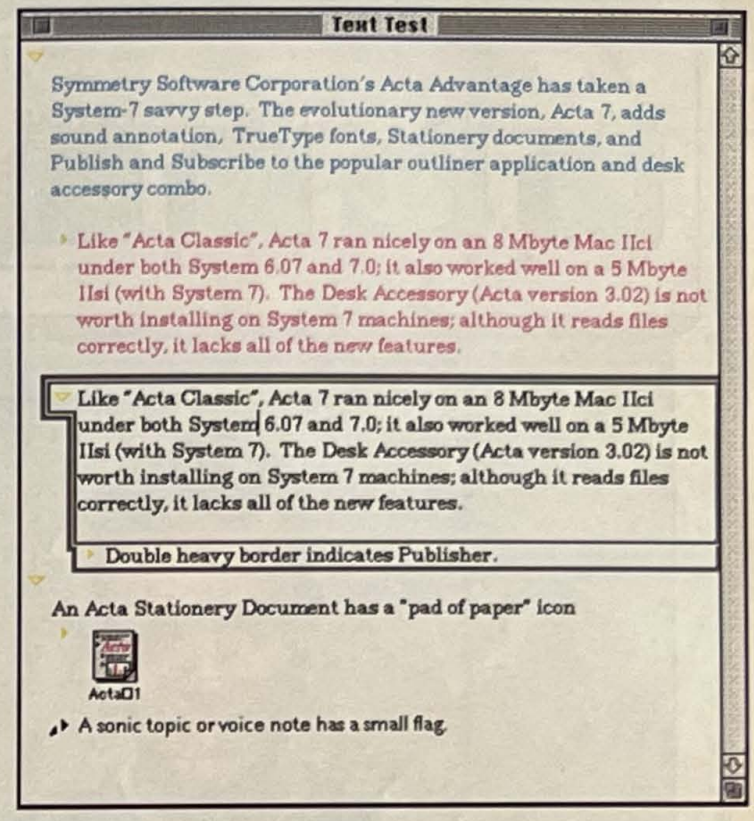
We ran into a few problems, more cosmetic than fatal. The Dial command would not work with an older U.S. Robotics Inc. Courier HST modem, although it did work through the Macintosh speaker. On occasion, the screen seemingly would become confused while working with a published topic, and nearby topics would vanish. A quick refresh (by resizing the window) always returned appearances to normal. It also seems possible to disrupt publisher-subscriber links by making alterations to a publishing document under System 6.0.7 — despite an alert box claiming the opposite.

The documentation is spiffier now — still clear, but terse. It would be nice to have a deeper discussion of publish and subscribe features, for example, with some sample files on disk.

Despite these rough spots, publish and subscribe alone is worth the price of admission to Acta 7. Acta can be a powerful summary-report generator, useful for gathering many bits and pieces of data into a compact, coherent and plastic whole. Projects and lists broken into publishers with a summary consisting of subscribers is exactly what we have wanted from Acta for a long time.

According to the developer, Acta 7 is compatible with 32-bit addressing and virtual memory, too. Upgrades cost $29.

Symmetry Software Corp. is at 8603 E. Royal Palm Road, Suite 110, Scottsdale, Ariz. 85258. Phone (602) 998-9106 or (800) 624-2485; fax (602) 991-0572. — *By Craig O'Donnell*


Text Test
Symmetry Software Corporation's Acta Advantage has taken a System-7 savvy step. The evolutionary new version, Acta 7, adds sound annotation, TrueType fonts, Stationery documents, and Publish and Subscribe to the popular outliner application and desk accessory combo.
Like "Acta Classic", Acta 7 ran nicely on an 8 Mbyte Mac IIci under both System 6.07 and 7.0; it also worked well on a 5 Mbyte IIsi (with System 7). The Desk Accessory (Acta version 3.02) is not worth installing on System 7 machines; although it reads files correctly, it lacks all of the new features.
Like "Acta Classic", Acta 7 ran nicely on an 8 Mbyte Mac IIci under both System 6.07 and 7.0; it also worked well on a 5 Mbyte IIsi (with System 7). The Desk Accessory (Acta version 3.02) is not worth installing on System 7 machines; although it reads files correctly, it lacks all of the new features.
Double heavy border indicates Publisher.
An Acta Stationery Document has a "pad of paper" icon
Acta01
A sonic topic or voice note has a small flag.

Acta 7, the latest version of Symmetry Software's smooth outliner, gives you a general-purpose repository for publish and subscribe editions. The System 7-savvy program also supports sounds in outlines.

Is so. Is not. Is so.

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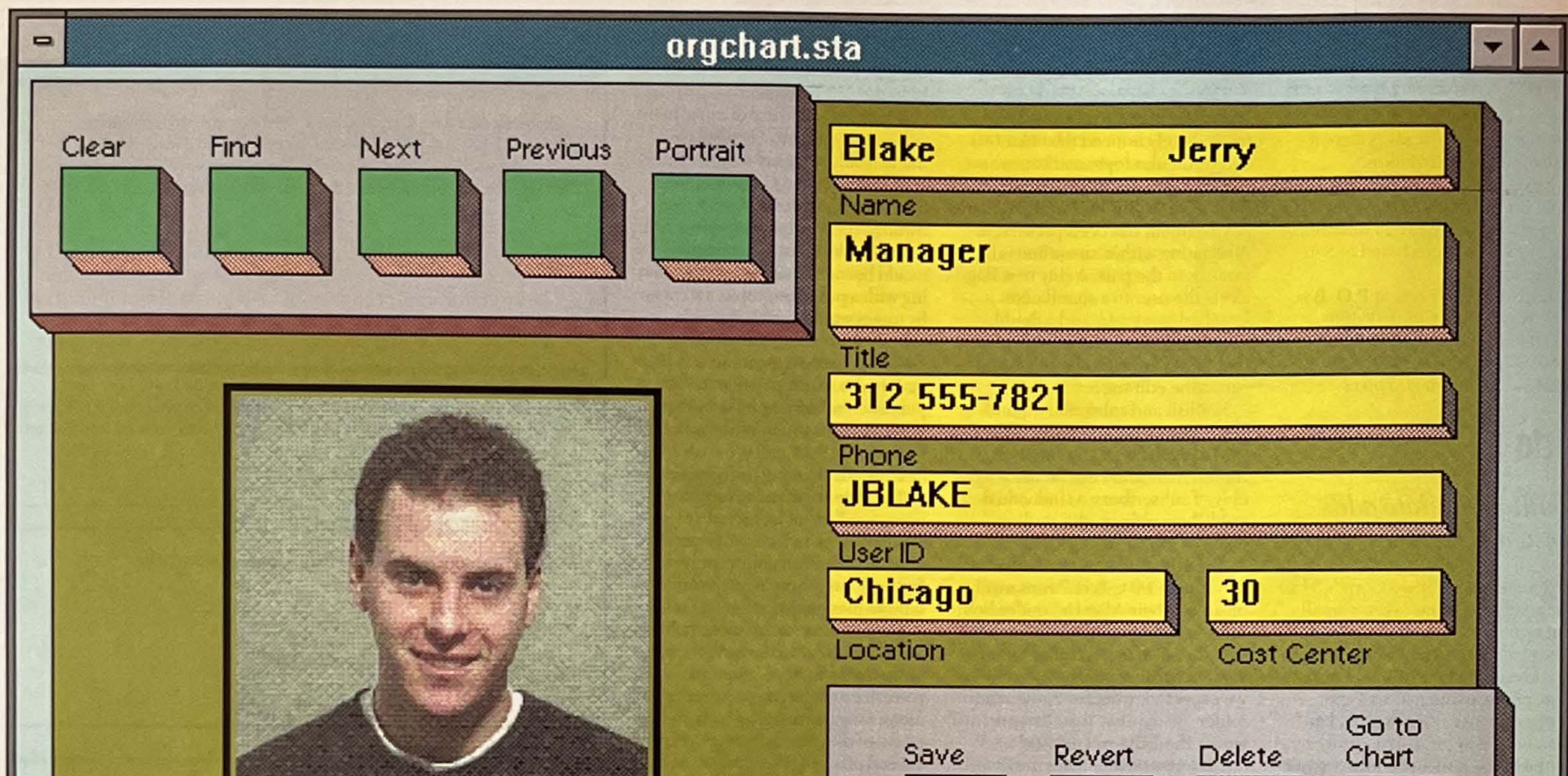

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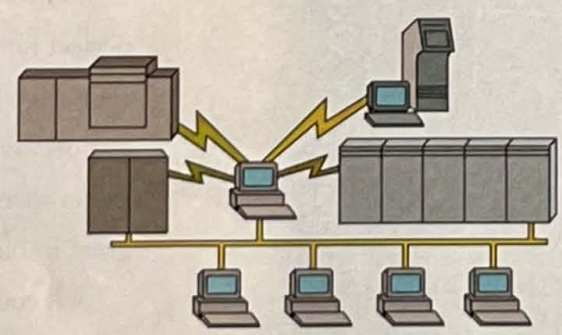

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Sales software gaining popularity

Sales automation tools can help sales staff track activities, generate reports, keep track of clients and generate sales responses.

	TRACK LEADS	WORD PROCESSING	MAIL MERGE	BUILT-IN REPORTS	MULTI-USER	ANALYSIS	TRACK ORDERS	INVOICING	TRACK SOURCES	TRACK STAFF	IMPORT EXPORT	AUTO STRATEGY
Market Master	●	●	●	●		●			●	●	●	●
C•A•T III	●	●	●	●			●	●	●	●	●	●
Colleague II	●	●	●	●	●		●	●		●	●	
Control Classic	●	●	●	●	●	●			●	●	●	●
Control II	●	●	●	●	●	●	●	●	●	●	●	●
Leads!	●	●	●	●	●	●			●	●	●	
SuperRep	●			●	●	●	●	●	●	●		
TeleMagic	●	●	●	●	●	●	●	●	●	●	●	
Sales/Lead Tracking	●			●	●	●			●	●	●	
PowerTrax	●	●	●	●	●				●	●	●	●
Client/Mac	●	●	●	●	●				●		●	●
SalesPower	●	●	●	●	●	●			●	●	●	●
SuperOffice	●	●	●	●	●	●			●	●	●	
Client	●			●			●	●		●	●	
Contact Ease	●	●	●	●	●				●	●	●	●
SoftSell	●			●				●	●	●	●	

By Cliff Lehman

Nearly a score of sales automation tools are now on the market. This month's rollout of the truly portable PowerBooks will make many sales and marketing managers look at this sales-tracking software with heightened interest.

Beyond PIMs. Although in some ways similar to personal information managers, sales automation products go well beyond providing personal-address and appointment-book functionality. Most are integrated applications with word processing and mail merge functions, and some provide accounting features. But the base of all sales automation products is a database of clients or potential clients.

These products also provide lead and activity tracking. Ticklers, a system of reminding users of what follow-up activity they have to do, range from simple, manually generated list reports to automatically generated reports that not only remind you to make a phone call but schedule it as well.

For example, WestWare Inc.'s Contact Ease and SuperOffice Corp.'s SuperOffice will automatically glean to-do lists from activities recorded in other parts of the programs.

Wayne Sturman, president of Aqua Techniques Ltd. in Mineola, N.Y., uses Control Classic from Diamante Software to help market water-purification systems. "I run a list of follow-up activities every morning to remind me of things I might forget to follow up on," Sturman said.

"For instance," he said, "if someone asks for some literature, I used to put that information in a folder along with a hundred other things; if I remembered to look I might follow up. Now [with Control Classic] I have a list that I print out every day that shows me when to follow up, if they need more information and so on.

"Control Classic has saved me tremendous amounts of time and actually saved sales," he said.

In addition, most of these programs will generate reports on past activity by the month, week or day, as well as by client or salesperson.

Since all of these products have lead- and activity-tracking systems with ticklers, it is difficult to choose one on that basis except by purely subjective criteria.

However, if your sales force needs some sort of automated strategy management or your business requires an integrated invoicing or order-tracking system, the number of choices drops precipitously.

Automated strategies. Automated strategies let salespeople or managers set up sales campaigns that automatically generate sales activity triggered either by responses to previous sales calls or by the lapse of a specified amount of time.

It can be as simple as five letters to be sent at specified intervals with only a closed sale stopping the flow, and as complex as a detailed plan that allows a customer's response to automatically move them to one of several different planned courses of action.

C•A•T III from Chang Laboratories Inc. is the market leader in sales automation and one of the few to claim an automated strategies feature. Others claiming this ability are Market Master from Breakthrough Productions, Control Classic and Control II from Diamante Software, PowerTrax from SoftSolution Inc. and Contact Ease.

Client/Mac from Software Complement and SalesPower from Stanford Business Systems Inc., according to those companies, have limited auto-strategy capabilities.

Lisa D'Agostino, marketing director at Sextant Corp., a Sarasota, Fla.-based company that markets restaurant-management software, has been using Contact Ease to automate the three plans she has set up for Sextant's potential customers — an ever-changing database of about 400 leads.

"It works really well," D'Agostino said. "There is no doubt we have increased sales because of it."

The advantages of automated strategies include the ability to put routine sales tasks in the hands of support staff and leave sales personnel more time with customers.

But do you need auto strategies? Many sales rely on the quick wit and instantly customized pitches available only with human-generated decisions. There are many managers whose clientele are too diverse to be trusted to even the best of automated sales campaigns. For this group, the choices remain wide-open.

Business management. Although the bottom line for most salespeople is the closed sale and resulting commission, many managers of small- to medium-size businesses see productivity gains in software that integrates management with invoicing, order tracking and even accounting capabilities.

"With C•A•T III I can look up anything I need while I'm out," said Jim Toland, owner of Mac Performance, a Mac consultancy in Cupertino, Calif. "I can print out invoices and other paperwork and bill people before I leave a job."

Four programs offer order tracking and invoicing functions — C•A•T III, SuperRep from SoftQuest Inc., Colleague II from Colleague Business Software Inc. and TeleMagic from MaxSolutions. Order tracking lets users keep tabs on the current status of customer orders.

Colleague II and SuperRep are the only two that offer accounting capabilities out of the box. Client from Trendware Corp. provides order tracking and invoicing via user customization, and Micro VertiSoft has available order-tracking, invoicing and accounting modules for its Sales/Lead Tracking package.

The advantage of integrating invoicing, order tracking and accounting with sales management is that fewer steps are needed between making a sale, taking orders, invoicing customers and dumping that into an accounting package.

The downside is it can become an unnecessary complication for the sales personnel by adding to the size and complexity of the software and databases they have to carry around.

The ability of Control II and other packages to manage commissions, however, may be a valuable function for some managers.

Multi-user. Most of the products in this category claim some sort of multi-user capability. Five of the programs (Market Master, C•A•T III, Client, PowerTrax, and SoftSell from Business Software Inc.) are not now multi-user. However, Market Master can be multi-user with additional software, and SoftSolution will have a multi-user version of PowerTrax out next month.

C•A•T III brings up a good question: Can you integrate database changes remotely? Although C•A•T III is not multi-user, Chang Labs has given it the ability to integrate changes in the database generated by remote users and vice versa. For managers of sales staff who are often on the road, this may be more important than multi-user capabilities.

Managing the staff. Leads! from Endpoint! Marketing Information Systems Inc. takes full advantage of the remote data sharing in its new three-part version of Leads!.

With an eye toward automating actual sales activities, as well as the management of salespeople and analysis of marketing strategies, Leads! is divided into three programs. The three-program set is based on the periodic flow of information, which requires the updating of data between the three levels.

Leads! Corporate uses information flowing from the personal and regional programs to make forecasts for sales and marketing managers. At the regional level, Leads! Manager pulls together the information a regional sales manager needs to oversee a sales group. It lacks the analysis abilities of the corporate level. Leads! Personal is a tool primarily for inside and outside sales representatives to manage sales leads.

Avid Technology Inc., maker of Mac video-editing software, uses Leads! for telemarketing sales work at its headquarters in Burlington, Mass., and remote sites around the country. Endpoint! added Leads!' remote data-exchange capability at Avid's request.

"We had quite a bit of customization done, but the most crucial thing we asked for was the ability to send and receive data, which is vital in a hierarchical sales force," said Steve Hall, a systems engineer/administrator at Avid.

Whether or not you need to customize one of these packages, the coming of the PowerBooks may have produced enough developer and user interest in them to generate improvements in them on a regular basis. As it stands now, many of these products make excellent starting points and definitely are cheaper and less time-consuming than building a system from scratch. □

Product Info

BREAKTHROUGH PRODUCTIONS
Market Master for the Macintosh 3.0: $395
two to four users: $595
five to 10 users: $895
11-20 users: $1,295
unlimited users: $1,995
210 Park Ave., Nevada City, Calif. 95959
Phone (916) 265-0911
Fax (916) 265-8036

BUSINESS SOFTWARE INC.
SoftSell: $375
701 San Conrado Terrace, Suite 5, Sunnyvale, Calif. 94086
Phone (408) 736-3000
Fax (408) 730-6165

CHANG LABORATORIES INC.
C•A•T III: $495
10228 N. Stelling, Cupertino, Calif. 95014
Phone (408) 727-8096
Fax (408) 252-3081

COLLEAGUE BUSINESS SOFTWARE INC.
Colleague II: $495
per additional user: $175
10000 Research Blvd., Suite 210, Austin, Texas 78759
Phone (512) 345-9964 or (800) 926-9965
Fax (512) 345-9965

DIAMANTE SOFTWARE
Control Classic: $595
Control II: $1,195 single user;
per additional user: $150;
spreadsheet/management analysis module: $395
11651 Plano Road, Suite 160, Dallas, Texas 75243
Phone (214) 341-6711 or (800) 223-2165
Fax (214) 341-6013

ENDPOINT! MARKETING INFORMATION SYSTEMS INC.
Leads! Personal: $595
Leads! Manager: $995
Leads! Corporate: $1,795
1230 Oakmead Parkway, Suite 210, Sunnyvale, Calif. 94086
Phone (408) 737-3831 or (800) 776-5690
Fax (408) 737-5979

MAXSOLUTIONS
TeleMagic: $495 single user
unlimited-user LAN version: $1,995
QuickMagic (DA for TeleMagic): $99
636 Hoska Drive, Del Mar, Calif. 92014
Phone (619) 259-0391

MICRO VERTISOFT
Sales/Lead Tracking: $695
1221 Roanwood Way, Concord, Calif. 94521
Phone (510) 672-1166 or (800) 826-1270

SOFTQUEST INC.
SuperRep: $395 to $2,495 depending on function level and modules
8711 Burnett Road, Suite F72, Austin, Texas 78758
Phone (512) 452-4500 or (800) 866-5880
Fax (512) 452-2378

SOFTSOLUTION INC.
PowerTrax: $495 single user
three users: $1,295
five users: $2,095
10 users: $3,995
25 users: $8,995
2900 Chamblee-Tucker Road, Building 12, Suite 200, Atlanta, Ga. 30341
Phone (404) 457-9400
Fax (404) 457-9800

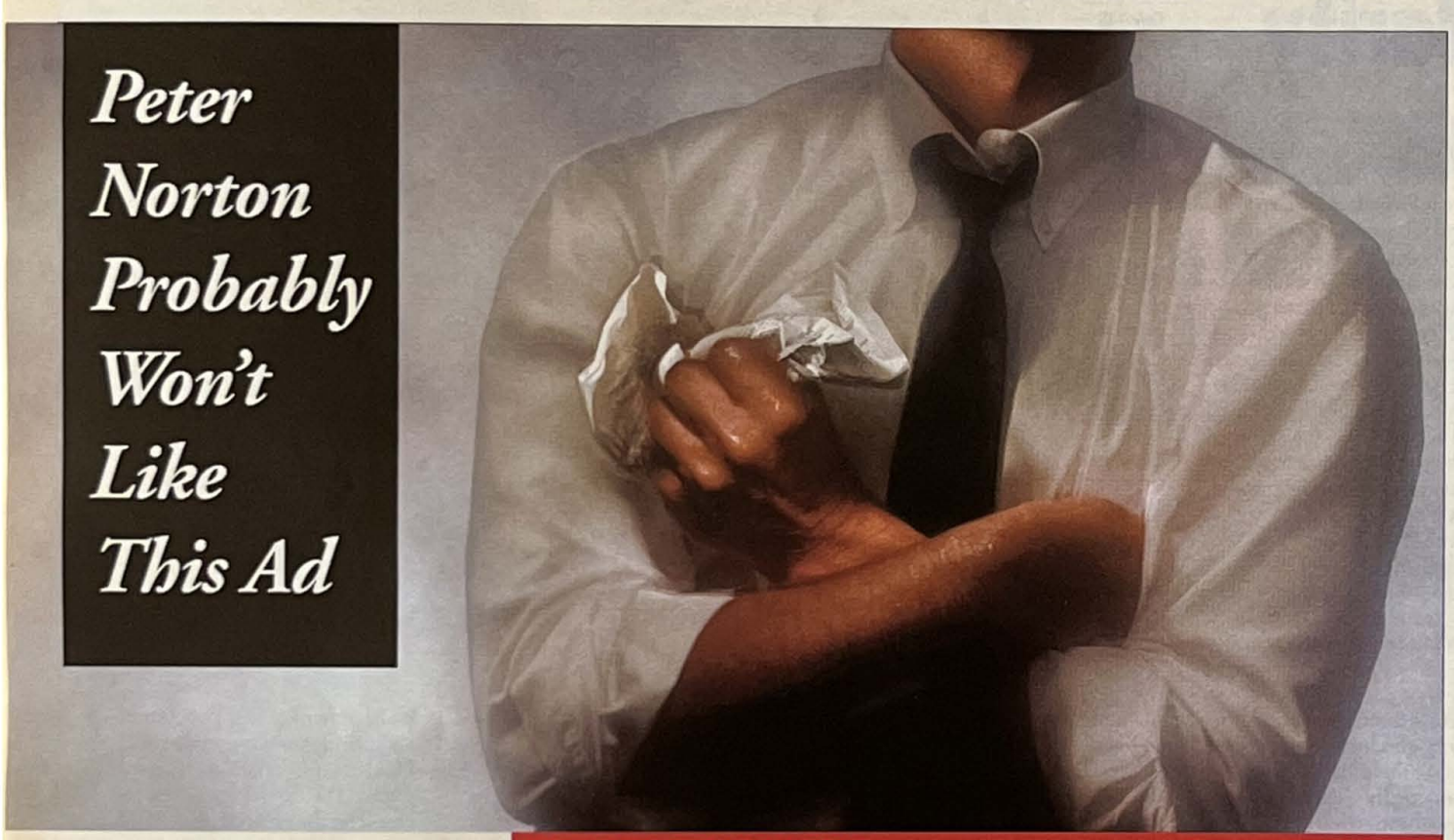
SOFTWARE COMPLEMENT
Client/Mac: $595 single user
two to five users: $995
six to 32 users: $1,395
8 Pennsylvania Ave., Matamoras, Pa. 18336
Phone (717) 491-2492
Fax (717) 491-2443

STANFORD BUSINESS SYSTEMS INC.
SalesPower: $395 per user; with word **processor:** $495
400 Corporate Pointe, Suite 415, Culver City, Calif. 90230
Phone (213) 417-4940
Fax (213) 417-5364

SUPEROFFICE CORP.
SuperOffice: $395 single user
five users: $1,695
10 users: $2,695
site licenses available
1 Cranberry Hill, Lexington, Mass. 02173
Phone (617) 674-1101
Fax (617) 674-2970

TRENDWARE CORP.
Client: $195
P.O. Box 2285, Huntington, Conn. 06484
Phone (203) 926-1116
Fax (203) 926-9423

WESTWARE INC.
Contact Ease: $395
10148 Diamond Head Court, Spring Valley, Calif. 91977
Phone (619) 660-0356 or (800) 869-0871
Fax (619) 660-0233



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Safely optimize any disk, regardless of the amount of fragmentation, without causing directory damage and lost data	YES	NO	YES
Clicking the program's STOP button always halts optimization safely without causing directory damage and lost data	YES	NO	YES
Verifies the accuracy of what it reads and writes during optimization by double-checking your data using technology that works on all hard disks—even those from Apple	YES	NO	NO
Adeptly optimizes any disk containing bad blocks spared by System 7, Norton Utilities, MacTools Deluxe or Sector Collector™ without the hassle of having to reformat your entire disk	YES	NO	NO
Conveniently optimizes even the busiest AppleShare™, FileShare™ and TOPS® file servers without interrupting productivity and without taking file servers off-line	YES	NO	NO

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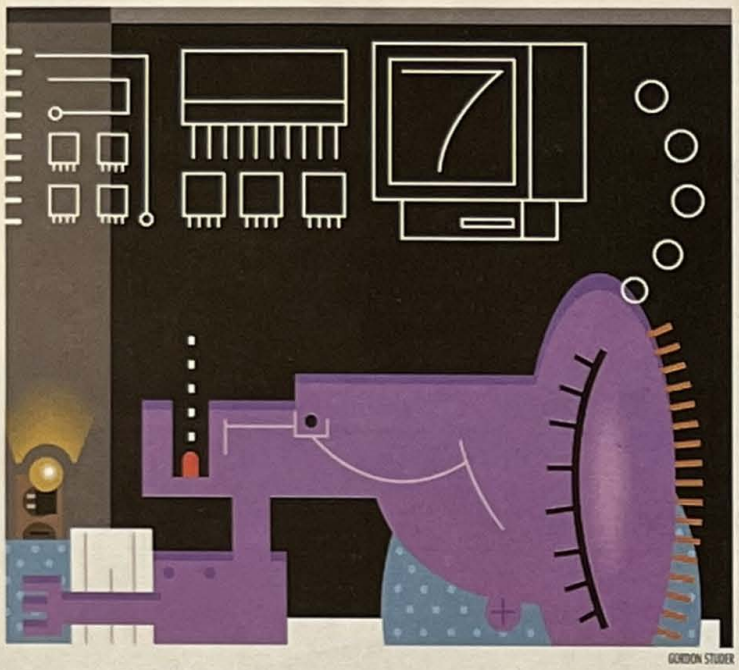
GORDON STUDER

MacInTouch RIC FORD

Beautiful memory still a System 7 dream

With System 7, virtual memory and inexpensive 4-Mbit chips, Mac memory should be a dream. But 32-bit-dirty applications force us into arcane 24-bit technical issues.

BUGS & TIPS

A dream delayed. System 7 can open up the Macintosh's memory space if you take advantage of 32-bit addressing, virtual memory and 4-Mbyte SIMMs. Imagine lots of large applications free from the traditional 8-Mbyte limit — a dream come true.

The dream has yet to become a reality, however, because much of the installed base of software is not 32-bit-clean. Many users have been forced to stay in 24-bit mode, trying to use virtual memory and 4-Mbit chips alone to extend the Mac's capabilities. (It is not practical to switch constantly between 32-bit mode and 24-bit mode when each switch means restarting the Mac.)

At first glance, virtual memory seems to provide a reasonable solution in 24-bit mode, but several obscure technical issues affect and limit its usefulness.

Virtual lock-out. Say you decide to take advantage of the steady decline in the price of 4-Mbyte SIMMs (single in-line memory modules) and buy a set, upgrading your Mac to 20 Mbytes of real memory. In 24-bit mode, you know there is no possibility of addressing more than 16 Mbytes, but your previous use of virtual memory leads you to believe that you can address at least 13 Mbytes.

Surprise! Virtual memory is not available at all. You're stuck with a maximum of 8 Mbytes of memory, which is less virtual space than you had before. Apple's software sees that real RAM is larger than the 13-Mbyte maximum in this mode, and it shuts out the virtual memory option.

Split memories. If you keep the amount of real RAM less than the virtual memory size, you *can* get as much as 13 Mbytes of virtual memory in 24-bit mode. There is still a problem in this scenario, however, and the first clue is Finder 7.0's About This Macintosh display.

About This Macintosh shows a size for "largest unused block," and it uses that size to determine the maximum size available for launching an application. It turns out that this size is typically limited to 6 or 7 Mbytes, not the 11 or 12 Mbytes you might expect.

ROM is the problem. In 24-bit addressing, ROM is located right at the 8-Mbyte line, and memory is split into several pieces. The Finder can use only a single, contiguous block to launch an application, so it can never get a block larger than 8 Mbytes minus the amount taken by the system.

There is no work-around for a single application, but you can use the memory above 8 Mbytes for additional applications, as long as they fit into the smaller blocks there. (A few applications, such as MacWrite 4.5, have problems running above the 8-Mbyte line at all.)

If you have an application that needs more than 8 Mbytes by itself, you'll have to use 32-bit addressing. In this mode, System 7 moves ROM up and out of the way, leaving lots of room for big blocks of RAM at lower addresses.

Niggling NuBus details. Another subtle factor also affects memory available above the 8-Mbyte line. Memory above 8 Mbytes is borrowed from the NuBus address space in 24-bit mode. Spacing cards apart might be best for cooling, but it is the worst case for memory fragmentation. By placing your cards optimally in the NuBus slots, you can avoid fragmentation and get blocks larger than 1 Mbyte.

Place NuBus cards together in adjacent slots, as close to the floppy drive as possible, except in the IIcx, where the cards should go at the end of the bus away from the floppy drive.

Third-party help. Connectix Corp. has been working on solutions to memory problems since System 6. Maxima 2.0.1, a $129 utility, lets you access up to 14 Mbytes of real RAM in 24-bit mode, and it makes leftover memory available for a RAM disk. Fragmentation is still an issue. Connectix's own virtual memory software is due for a System 7 upgrade before the end of 1991. Virtual 3.0 ($199) will support 14 Mbytes of real memory, as Maxima does, and it will offer a "disk saver" option that limits the size of the virtual memory swap file to the difference between real and virtual memory.

REFERENCE

Connectix Corp. is at 2655 Campus Drive, San Mateo, Calif. 94403-2520. Phone (415) 571-5100 or (800) 950-5880; fax (415) 571-5195. □

Comments on MacInTouch are welcome at 7 Parmenter Ave., Maynard, Mass. 01754. Phone (508) 897-2621. Address electronic mail to 72511.44@compuserve.com from the Internet; to 72511.44 from CompuServe; to MACWEEKBOS from America Online, Delphi and GEnie; to RICFORD from MCI Mail or Connect. From AppleLink, 72511.44@compuserve.com@INTERNET# is the current address.

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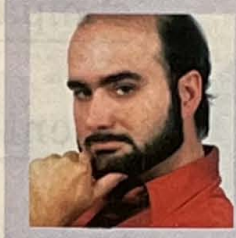
Ask David Ramsey

Putting system extensions in their place



Q: *Every time I boot my Mac, I see a dialog box telling me what a system extension is. Why?*

A: Extension is a generic System 7 term used to describe the software we used to call Startup documents (INITs), Chooser devices and the like. System 7 maintains a lot of special folders inside the System folder for extensions. In your case, someone's dragged an extension into the Startup Items folder inside your System folder. Drag the extension out, then drag it onto the System folder icon and let the Finder put your extension where it belongs.

Q: *The battery on my new Mac PowerBook 100 doesn't last very long. How can I get the most battery life?*

A: As with most notebook computers, the PowerBook 100's single largest drain comes from the screen's backlighting. At full brightness, backlighting accounts for fully half the current used by the machine. You can maximize your battery life by keeping the screen brightness turned down as low as possible. If you ever use the machine outside, you can turn backlighting completely off. Unlike other backlit screens, the PowerBook's screen is quite readable in bright sunlight with no backlighting.

Q: *I have both TrueType and Adobe Systems Inc.'s Adobe Type Manager on my Mac, and I am using a LaserWriter IINT printer. How can I tell which type of font is used under what situations?*

A: Well, I'd advise tossing either your TrueType or ATM fonts and sticking with only one font-imaging technology; it'll make your life easier. In your case, since you have a PostScript printer, I'd say ditch TrueType. But if you want to keep them both, here's the order in which screen and printer fonts are handled.

For the screen, the first choice is an existing bit-mapped font of the correct size, followed by a TrueType font, followed by an ATM font, followed by the last resort, a scaled bit-mapped font.

On a non-PostScript printer, it's TrueType, followed by ATM, followed by a bit map of the correct size, followed by a scaled bit map.

On a PostScript printer, it's internal PostScript font, downloaded PostScript font, TrueType, bit map of the correct size and scaled bit map.

Please send questions to David Ramsey on CompuServe: 76702,335 or to Ask David Ramsey, c/o MacWEEK, 301 Howard St., 15th Floor, San Francisco, Calif. 94105.

The Help Desk

Scratch this on the bottom of your PowerBook

PowerBook owners in the United States can get support directly from Apple by dialing (800) 767-2775 between 6 a.m. and 5 p.m. PST. If you have a problem with your Mac PowerBook, the Apple engineers staffing the phones can guide you through hardware troubleshooting and, if necessary, direct you to a nearby authorized Apple repair center. Even better, Apple will use Airborne Express to pick up your ailing PowerBook for repair at Apple's Central Repair Center and then deliver it back to any address you wish.

Apple dealers who don't want to repair the PowerBook also can use this program to farm out such work.

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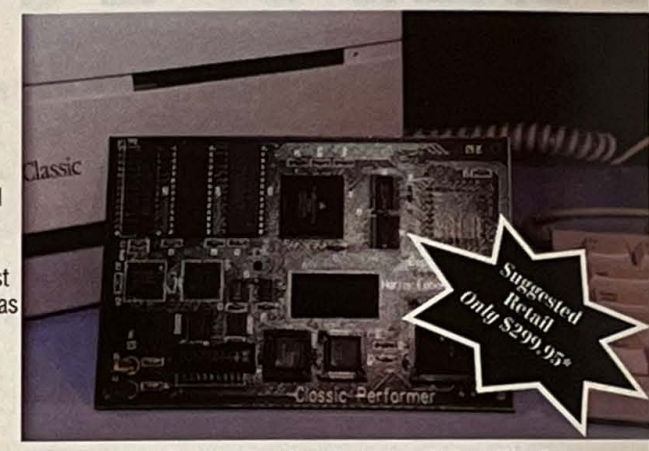

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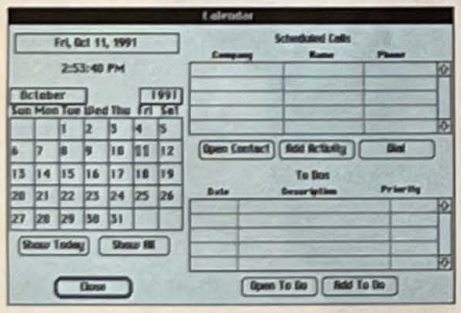

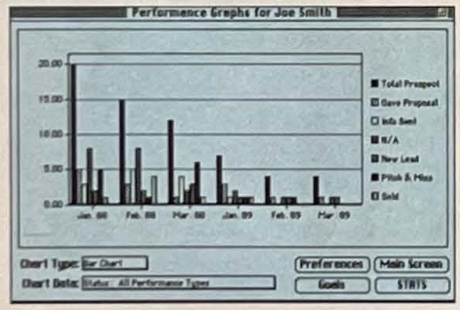

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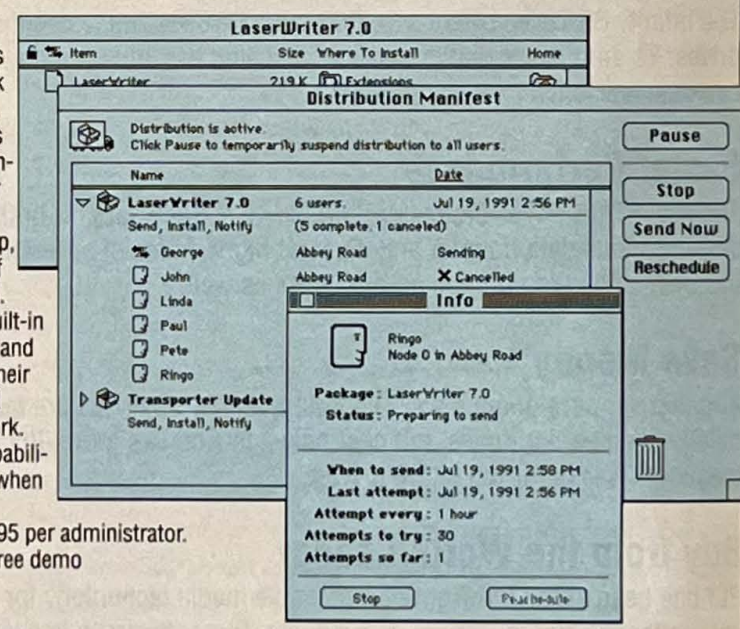

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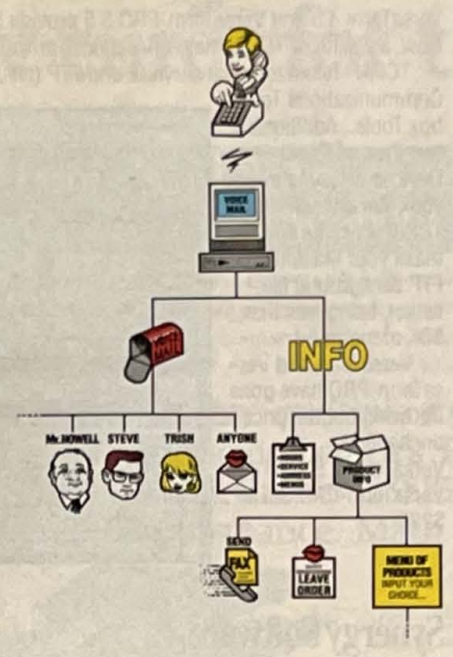

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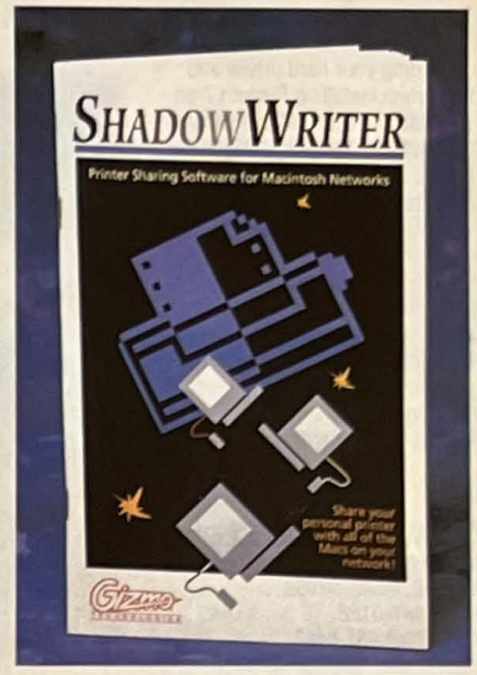
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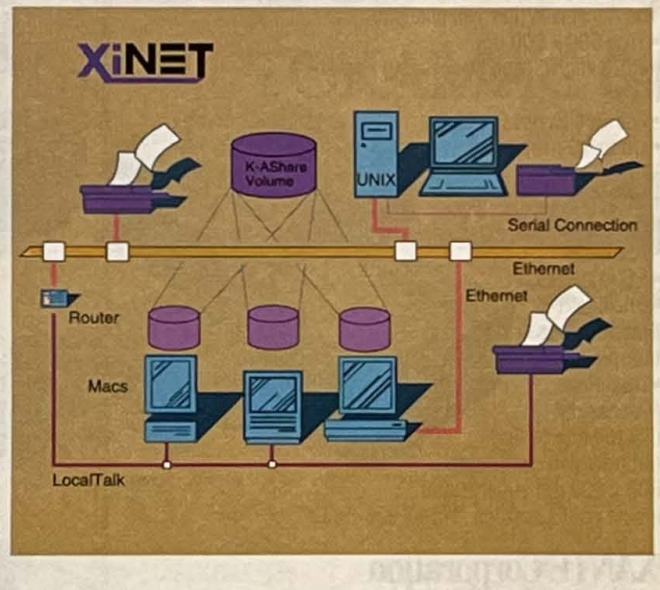

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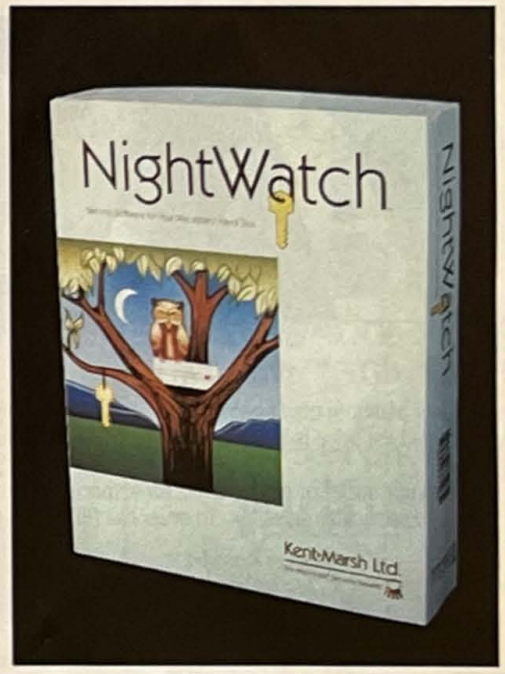

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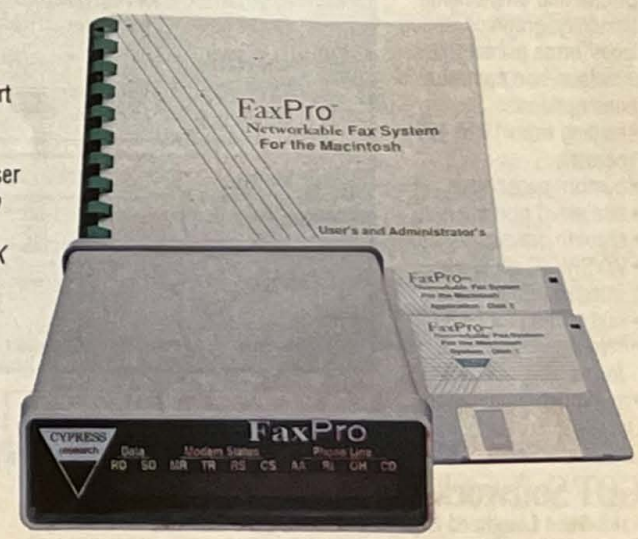

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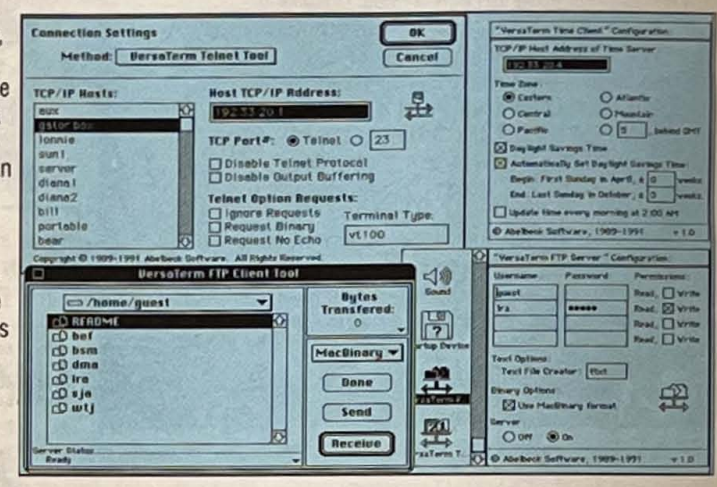

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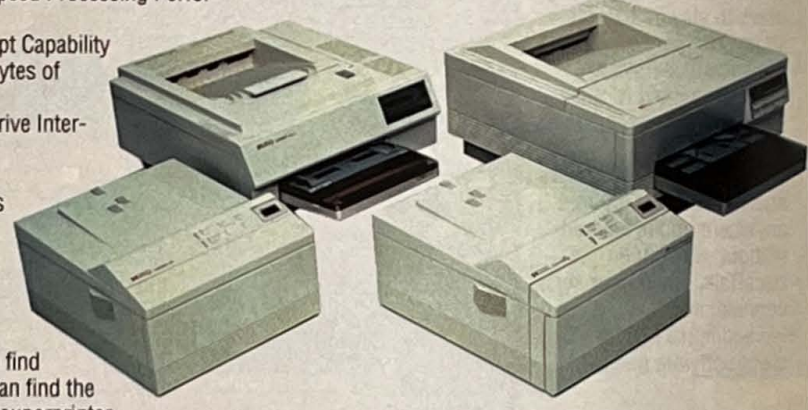

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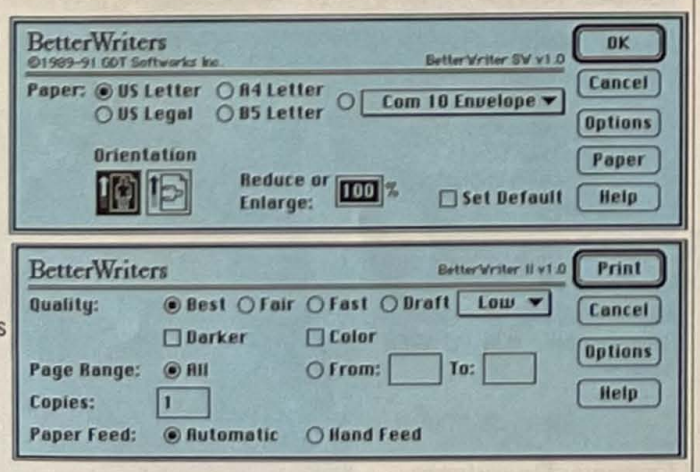

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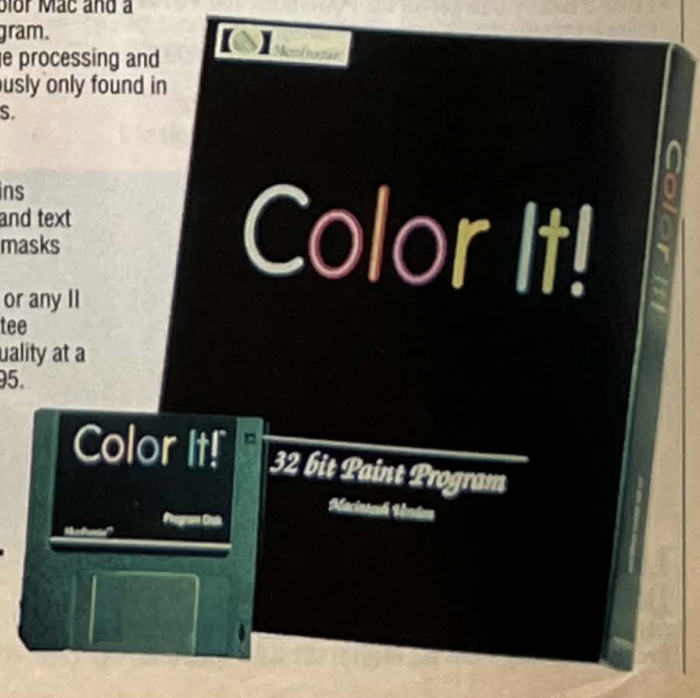

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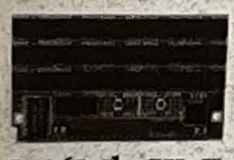

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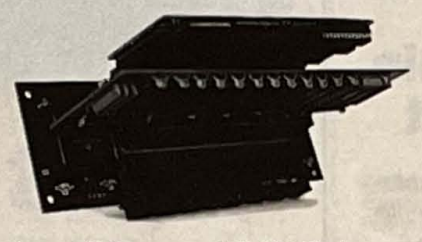


Asanté Ethernet card & IIsi Cache with 030 Dual Slot Adaptor.

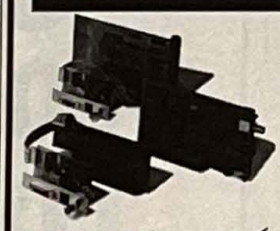
Now with Logica Research's unique new IIsi enhancements, all your options are open. LogiCache plugs right in your IIsi slot. If you need another expansion card (video, Ethernet, etc.) just purchase the Logica '030 Slot Adaptor—which allows the use of the LogiCache AND the second expansion card! Ask us about our Apple NuBus adaptor trade-in program.

LogiCache IIsi 64K	$169
IIsi 030 Dual Slot Adaptor	59
20 MHz 68882 FPU	75

TOKAMAC 040 from $2,099.

for LC, IIci, IIsi and SE30

Asanté Ethernet from $209



ASANTÉ

Rated number 1 by MacUser. Includes 5 year warranty.

Networking Products
II, IIx, IIfx, IIcx, IIci, IIsi/SE30, LC, SE:

Thick/ Thin	$209
Thick/ 10T	209
Thick/Thin/ 10T	269
Apple AUI/ Thin*	269
Apple AUI/ 10T*	269
10T 12 port hub	699
Thick to 10T Adaptor	109
SCSI Ethernet Thick/ Thin/ 10T	349
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**Not for Mac SE*

"If only we knew which companies manufacture SIMMs so we can get the best prices and the fastest delivery."

Third Wave manufactures a full line of 1, 2, 4, 8 and 16 mb SIMMs without releasing harmful CFC's into the atmosphere. Call for manufacturer's direct prices.

LC VRAM	$69
SIMMpack for Classic 0 mb board	39
SIMMpack w/1 mb	49
SIMMpack w/3 mb	129
SIMMpack drive bracket kit*	16

**Remove drive from IIsi and LC, install in Classic.*

Portable CD ROM Drive—$579

Toshiba based. Plugs into your stereo or computer. Includes free Nautilus CD ROM Magazine.

"If only I could get video images on a Mac." Look into XAPSHOT.

Import high quality still video images to your Mac using a frame grabber. XAPshot stores up to 50 images on 2" diskettes. Connect to a TV for previewing. Great for video, slide graphics and print work. Demo Diskette shipped overnight for $15.

XAPSHOT, camera only	$429
XAPSHOT Bundle w/24-bit frame grabber	$749
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Media

Teac CT600H (60 mb)	$17
Teac CT600N (150 mb)	24
SyQuest SQ400 (45 mb)	69
SyQuest 800 (88 mb)	119
4mm DAT Tape, 60 meter	19
Optical Cart (ISO) 512/1024	125

Disk Drives

	Internal	External
52L*	239	329
105L*	379	489
210	659	749
320	1,099	1,199
425 3.5"	1,499	1,589
650	1,399	1,499
1000	1,999	2,099

52L, 105L, 210 & 425 —2 yr. warranty. 320, 650 & 1000 mb—5 yr. warranty.
Macworld *rated our 105x the fastest** & quietest.*** They also liked our manuals and solid track record.****.*

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88DR Dual SyQu., 2carts	1,399
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150t Teac Tape Backup	595

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Radius 19" 24 bit Color System	Call
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RasterOps

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8L-24L Systems	Call
SuperMac Video Systems	Call
Seiko Trinitron 14"	Call
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DayStar PowerCache 25, 40 & 50 Mhz•	Call

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**Highest SCSI Evaluator Read/Write of any drive tested, September '91 *MacWorld* review.
***"Quietest drives tested"—March '91, *Macworld* review.
****September '91, *Macworld* review.

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• **ATM FONT RENDERING TECHNOLOGY.** Raw characters are built 4 to 5 times faster.

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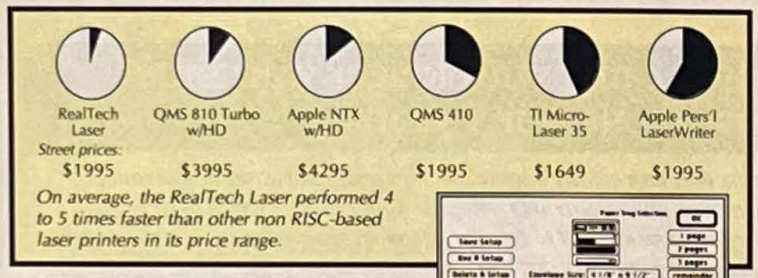
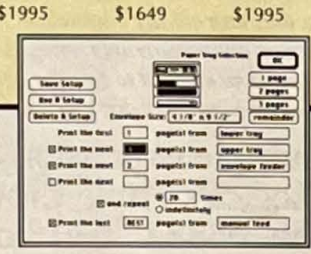
Réal Provencher, President
Software & Hardware That Fits



On average, the RealTech Laser performed 4 to 5 times faster than other non RISC-based laser printers in its price range.



You can specify up to 4 paper changes without moving anything but your mouse!

•500% faster!

- **RISC processor**
- **2 paper trays**
- **9 pgs/min**
- **SCSI port**

PC-compatible; its 3 interface ports can be used at the same time. Includes Appletalk® RS-422, IBM PC parallel, and RS-232-C serial interface ports (can be assigned either PostScript® or LaserJet II commands). Auto switches between interfaces, and spools files on a real-time basis. A Hewlett-Packard LaserJet Series II emulation allows use with non-PostScript® applications software.

2 Mb RAM, upgradable to 10 Mb! *The only printer of its kind with this much RAM and hard disk expansion capability.* Includes a SCSI port for a hard disk. The RealTech Laser includes 35 resident PostScript® typefaces. Compact design (only 33.5 lbs.; measures 13.4"W x 14.2"D x 10.9"H).

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Only $1995!

POSTSCRIPT®
Software From Adobe
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The RealTech Laser and RealTech Laser 400 were specifically designed for sophisticated graphics and font-intensive applications.

For speed and performance, they're based on a RISC-based (Reduced Instruction Set Computing) processor and PostScript® Level 2 software from Adobe.

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High-speed, 8½x11 – OR – 400 dpi, 11x17

• RISC processor • 2 printer trays • 16 ppm (letter) • 8 ppm (11x17) • 20,000 pgs/mo duty cycle • 300 or 400 dpi • SCSI port for hard disk

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$4979 Mac IIci B&W 21" Dual Page System, 5 Mb RAM, Cache Card, 105 Mb Quantum, MacPro Plus Keyboard

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$9865 Mac IIfx w/ one Floppy Drive, 8Mb RAM, 210 Mb Internal Hard Drive, Ikegami 24-bit 19" Color Monitor and Video Card, MacPro Plus Keyboard

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CPU	Monitor	Price
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Mac II, IIcx, IIci IIx, IIfx, SE30	Mono GS 256	$995 $1479
Mac IIsi	Mono	$1059
Mac Portable	Mono	$1249

RealTech Full Page Display $579

Quality, flicker free images at a price that lets you experience the convenience of large screen viewing.

15" portrait display has 870 x 640 resolution, 80 dpi. Vertical refresh rate of 74 Hz, full grayscale capability, and flat CRT, (P4 phosphorus), polished screen. One-year warranty.

CPU	Monitor	Price
Mac II, IIcx, IIci, IIx, IIfx, SE, SE/30	Mono	$579
Mac II, IIcx, IIci IIx, IIfx	GS 256	$1079
Mac IIsi, IIci	GS 16	$495
Mac Portable	Mono	$849

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Ikegami is the undisputed champ in color reproduction. Comes with an integrated tilt/swivel stand, and auto and manual degaussing. Full anti-glare coating, 75 Hz vertical refresh rate, and flicker-free images reduce eye strain and improve user comfort. Comes with a high resolution 1024 x 768 video card. The right solution for every budget!

System	Colors	Price
Entry Level	256	$2479
Professional	256	$2849
Master's	16 million	$3195

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Scanmaker 600ZS Color Scanner includes Adobe Photoshop – full version, with 24-bit color editing and color separation capabilities.

High-resolution color scanner capable of scanning 16 million colors at up to 600 dots per inch. Outstanding image quality in a compact, flatbed design.

- 16.8 million colors
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- Scanning speed 150 seconds

Only $1429!

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Microtek Scanmaker Slide Scanner.

The affordable 35mm color slide scanner. Scans landscape or portrait slides at 1850 dpi. Captures 24-bit color and 8-bit grayscale. Bundled with PhotoShop, you'll be able to produce 4-color separations from your color slides. A great scanner at a great price!

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Available now for Mac II, Mac IIx, Mac IIcx, Mac IIci, Mac IIsi, Mac SE30 and Mac LC

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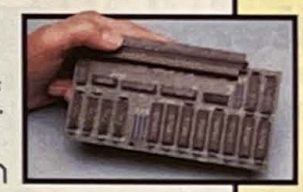

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"...cache cards are simple, efficient, cost-effective enhancements for an already speedy Mac."

— MacUser, June 1991

IIci Cache Card	**$159**
IIsi Cache Card	**$169**
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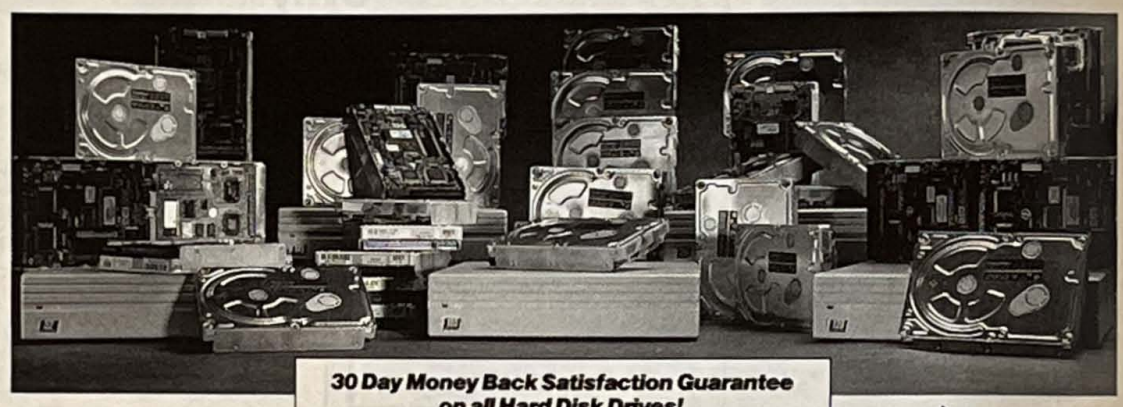

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Dual 44*	**$799**
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44 MB Cartridges

Single	**$66**
Five Pak-Ea.	**$64**
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88 MB Cartridges

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1 mb 100ns
$32
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SIMM Installation Manual Included

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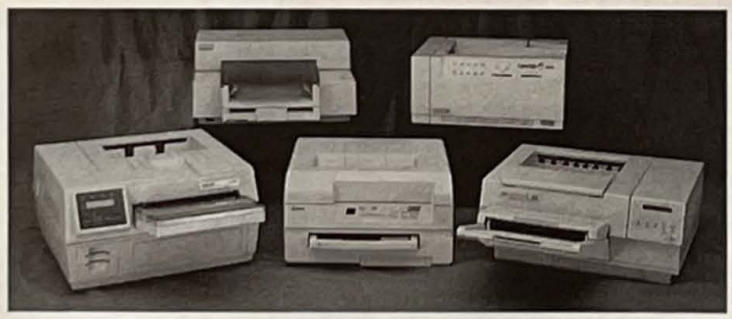

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Qume CrystalPrint Express $2,995

- 3mb RAM
- 12ppm
- 32bit RISC Processor
- 600x300 Resolution
- (2) 250 sheet trays

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Quantum

Capacity			Internal	External
50mb	3.5" Low Profile	9ms/25ms*	$219	$279
105mb	3.5" Low Profile	9ms	$335	$395
120mb	3.5" Low Profile	9ms/25ms*	$529	$589
170mb	3.5" Half Height	10ms	$549	$609
210mb	3.5" Half Height	10ms	$619	$679
425mb	3.5" Half Height	8ms	$1159	$1219

Quantum Drives include a TWO Year Warranty and the ClubMac Package.
3.5" Half Height drives are the PRO series. 3.5" Low Profile drives are the LPS series.
*3.5" Low Profile, Low Power drives for the Mac Classic, LC, and IIsi.

ClubMac Package

SCSI Director™ Hard Disk Formatting Utility

- All ClubMac Drives are System 7.0 compatible!!
- A/UX supported
- Partition & Password Protection

- ClubMac Package:
  Internal Drives include mounting brackets, cables, and ***SCSI* Director™** Formatting Utility
  External Drives include a 25/50 pin SCSI cable, power cable, ***SCSI* Director™** Formatting Utility, and a zero-footprint cabinet (two 50 pin SCSI ports, removable termination, auto-switching power supply)
- All hard drives come pre-formatted and tested.
- All drives have internal termination.
- Termination can be removed upon request.
- Daisy chain cable substituted upon request.
- All capacities and speeds are manufacturer's specs. Actual specs may vary.

CONNER

Capacity			Internal	External
40mb	3.5" Low Profile	25ms	$215	$275
120mb	3.5" Low Profile	25ms	$375	$435
200mb	3.5" Half Height	16ms	$599	$659

Conner Drives includes a ONE Year Warranty and the ClubMac Package.
Conner 40 & 120 are perfect for the Mac Classic, LC, and IIsi.

Tape BackUp Systems

Teac	155mb	$579
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WangDat 1300HS	2.0GIG	$1295
WangDat 2000	5.0GIG	$1569
ClubMacDAT Python	2.0GIG	$1389
Exabyte 8200	2.2GIG	$2095
Exabyte 8500	5-8GIG	$3329

All Tape BackUp Systems include a ONE Year Warranty,
one cassette, RETROSPECT (v.1.3) backup software, and all necessary cables.

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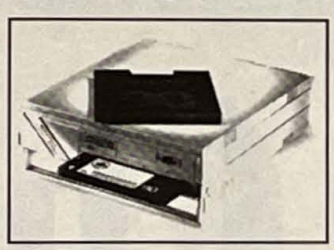
- Effective Access Time: 19ms
- Capacity: 90MB formatted
- **Includes Mac Interface Kit**

90MB Cartridge $140



" The Bernoulli 90 has become our large-capacity removable-drive of choice".

MacWEEK, 08/06/91 Issue

Iomega Bernoulli Transportable has a ONE Year Warranty.
Cartridges have a FIVE Year Warranty!!

SyQuest TECHNOLOGY

44mb	5.25" Removable Disk Drive 20ms	$429
88mb	5.25" Removable Disk Drive 20ms	$595
Dual 44mb		$779
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Dual 44mb & 88mb		$1039
(Includes one 44mb cartridge & one 88mb cartridge)		
44mb Cartridge		$66
88mb Cartridge		$115

SyQuest Drives have a TWO Year Warranty!
Includes one cartridge, all necessary cables, and ***SCSI* Director™** Formatting Utility.

Ask about RetroSpect Bundle

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HEWLETT PACKARD

5 Year Warranty

Capacity			Internal	External
220mb	3.5" Half Height	13ms	$729	$789
324mb	3.5" Half Height	13ms	$1155	$1215
410mb	3.5" Half Height	13ms	$1405	$1465
330mb	5.25" Full Height	14ms	$1145	$1245
645mb Δ	5.25" Full Height	16.5ms	$1479	$1579
1.0GIG Δ	5.25" Full Height	16.5ms	$2215	$2315
1.3GIG	5.25" Full Height	13.5ms	$2719	$2819

Hewlett Packard Drives include a FIVE Year Warranty and the ClubMac Package. Δ High performance drives AVAILABLE !!

Optical Drives

650mb Eraseable $2875

- Average seek time 95ms • Average latency 12.5ms
- Data tranfer rate, reads 680 KB/sec (host dependent)
- Magneto - Optical and/or write once media
- Handles rewritable function and write once function

Hewlett Packard Optical Drive includes a ONE Year Warranty and one cartridge.

DAT Drives

- 3.5" Half Height • 4mm tape • SCSI II Compatible
- 30 sec Average Search Time • HP media / HP cleaning kit
- Firmware downloadable and downward compatible

2.0GIG DDS $1699

5-8GIG DDS $2099

Hewlett Packard DAT Drives include a ONE Year Warranty, one cartridge, and RETROSPECT (v.1.3) backup software.

FUJITSU

Unbeatable Quality and Performance

Capacity			Internal	External
330mb	3.5" Half Height	9ms	$1295	$1355
425mb	3.5" Half Height	9ms	$1369	$1429
520mb	3.5" Half Height	9ms	$1549	$1609
345mb	5.25" Full Height	16ms	$1197	$1297
645mb	5.25" Full Height	16ms	$1295	$1395
1.2GIG	5.25" Full Height	11.5ms	$1995	$2095

Fujitsu Drives include a FIVE Year Warranty and the ClubMac Package.

Maxtor®

Capacity			Internal	External
40mb	3.5" Low Profile	17ms	$219	$279
80mb	3.5" Low Profile	17ms	$269	$329
207mb	3.5" Half Height	13ms	$599	$659
330mb	3.5" Half Height	14.5ms	$939	$999
645mb	5.25" Full Height	16.5ms	$1395	$1495
1.0GIG	5.25" Full Height	13ms	$1929	$2029
1.4GIG	5.25" Full Height	13ms	$2519	$2619

Maxtor Drives include a TWO Year Warranty and the ClubMac Package.
Maxtor 40 and 80 are perfect for the Classic, LC, and IIsi.

Imprimis Wren

by

Seagate

Capacity				Internal	External
420mb	3.5" HH		14ms	$1269	$1329
320mb	5.25" HH	Wren-6	14ms	$1155	$1215
320mb	5.25" FH	W-Run	10.7ms	$1269	$1369
645mb	5.25" FH	W-Run II	11.9ms	$1725	$1825
645mb	5.25" FH	Wren-6	15.5ms	$1425	$1525
1.0GIG	5.25" FH	Wren-7	15ms	$1989	$2089
1.4GIG	5.25" FH	Wren-8	15ms	$2399	$2499

Seagate Drives include a ONE Year Warranty and the ClubMac Package.
Internal Drives fit the Mac II, IIx, and IIfx. HH = Half Height, FH = Full Seagate Drives

EXTENDED FIVE YEAR WARRANTY AVAILABLE

ClubMac

1-800-CLUBMAC

7 Musick • Irvine, CA 92718

Monitors

radius

Color Pivot Display System $1782
- 15", dual-orientation, anti-glare COLOR full page display
- 640 X 870 X 75 Hz at 75 dpi
- Compatible with Mac IIsi & IIci built-in-video (16 colors)
- Color Pivot Interface available for the Mac IIsi, II NuBus, LC, or SE/30 (256 colors)

Color Display System
- 19" Two Page Trinitron • 1152 X 882 X 71 Hz at 82 dpi
- Includes one of the following interfaces

PrecisionColor/8	$3239
DirectColor/8	$3905
DirectColor/24	$4905
DirectColor/GX (NTSC)	$3239

Pivot Display System $950
- 15" monochrome, dual-orientation, full page display
- Resolution of 640 X 870 X 75 Hz at 78 dpi
- Includes the interface for the SE/30, LC, or II NuBus

Full Page Display System $760
- 15" monochrome portrait display
- Includes the interface for the SE or Classic

Two Page Display System $1275
- 19" monochrome, landscape, two page display
- Resolution of 1152 X 882 X 71 Hz at 82 dpi
- Includes the interface for SE, SE/30, IIsi, or II NuBus

RasterOps

RasterOps 21" Color System

Monitors

21" Color Hitachi $2835
- Resolution of 1152 X 870 at 77 dpi

19" Color Hitachi $1765
- Resolution of 1024 X 768 at 72 dpi

19" Color Trinitron Sign. Series Black $2709
- Limited Time Offer • Resolution of 1024 X 768 at 72 dpi

19" Color Trinitron $2709
- Resolution of 1024 X 768 at 72 dpi

Display Boards

24si (13" 24-bit Accelerated)	$565
264/SE30 (13" 24-bit Color for SE/30)	$565
24XLi (21" 24-bit Accelerated Color)	$2199
8XLi (21" 8-bit Accelerated Color)	$939
8XL (21" 8-bit Color)	$439

MultiMedia Products

ColorBoard 364 (13" 24-bit Color Video)	$629
24STV (13" 24-bit Accel. Color Video)	$1129
24XLTV (21"-13" 24-bit Accel. Color Video I/O)	$2499

SUPERMAC
THE SUPERSOURCE FOR COLOR

ColorCard/24
True-Color Graphics Card for 13" Display & the Mac II Family

Displays

19" Platinum Display	$919
21" Platinum 2-Page Display	$1179
19" SuperMatch COLOR Display	$1835

Graphic Cards

Spectrum/24 Series III	$1969
Spectrum/8•24 PDQ (si)	$919
Spectrum/8 si, LC, Series III	$655
ColorCard 24	$459
Graphics Accelerator	$265

E-MACHINES
E-Magination at work™

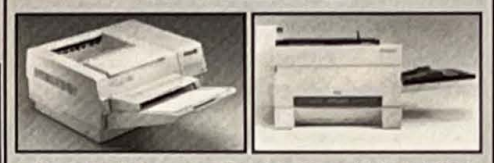
ColorPage T16	$1599
ColorPage E16	$989
Futura SX	$959
DoubleColor	$319

Printers

EPSON

EPL-7500 Laser Printer $1895
- TRUE Adobe PostScript
- High-speed RISC processor
- Parallel, serial and AppleTalk interface standard
- HP LaserJet Series II Emulation
- 6 ppm • 35 resident fonts
- 2 MB RAM standard, expandable up to 6MB
- MicroArt Printing with 300 X 300 dpi resolution
- 2 Year Warranty

NEC



Standard Features Model 90 and Model 990
- TRUE Adobe PostScript
- 35 scalable fonts
- 300 dpi high resolution
- 2 MB RAM std, up to 4 MB
- Includes AppleTalk Interface
- **FREE** 90 Day On-Site Service

SilentWriter2 Model 90 $1479
- 6 ppm • 16 MHz • Minolta Engine
- 250-sheet Universal Paper Tray

SilentWriter2 Model 990 $2849
- 8 ppm • Canon Engine • 32 MHz RISC Processor
- Built in SCSI Port • Auto-Emulation Switching

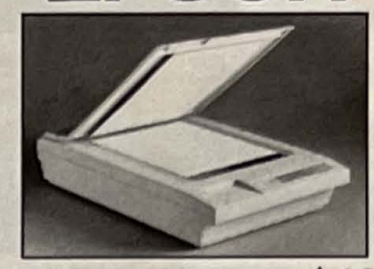
OKIDATA

NEW !!

OL830 LED Page Printer $1529
- 8 ppm • 300 dpi • 17 scalable fonts
- 2MB RAM std, up to 6MB
- Emulation: Adobe PostScript, HP LaserJet II, and Apple Talk Interface
- Dual 200 sheet tray capability
- 1 Year Warranty, 5 Year LED Printhead • On-Site Service

Scanners

EPSON



ES-300C Scanner $1215
- Fixed 300 dpi high resolution scanning with adjustability from 50 to 600 dpi
- MAC/MS-DOS PC compatible
- 24-bit color & 8-bit mono scanning
- Epson's TruePass scanning system (3 sep. light bars for one-pass scanning)

FREE
ColorStudio
ImageStudio
ScanDO/DA

MICROTEK

600ZS Color Scanner $1449
- Up to 600 dpi high resolution scanning
- OCR Compatible • Built in SCSI Interface
- **FREE Adobe Photoshop (v.2.0) !!**

Marstek™

Langelo Color Hand Scanner $499
- 200 dpi - color • 18-bit Color
- 400 dpi - monochrome • 64 shades of gray

Accelerators

DAYSTAR DIGITAL

MONEY BACK 30 DAY GUARANTEE

Cache Cards for the SE/30, LC, II, IIx, IIsi, IIci, IIcx

FastCache for IIsi / IIci	$295 / $259
40 MHz PowerCache	$879
40 MHz PowerCache (68882)	$1079
50 MHz PowerCache	$1359
50 MHz PowerCache (68882)	$1629
QLS 16 MHz 68881 for LC	$89
QLS 16 MHz 68882 for LC	$129
ATTO 32K 030 Cache Card (Mac IIsi)	$209
ATTO 64K Cache Card	$149

radius Rocket $1659

Mac Classic 16MHz Accelerator	$230
68881 Math Co-Processor Upgrade	$75

Networking

ASANTÉ

Mac II Series, LC, SE, SE/30 Ethernet Cards

Thick/Thin, 16K	$189
Thick/Thin, 64K	$239
Thick/10BaseT, 16K	$189
Thick/10BaseT, 64K	$239
Thick/Thin/10BaseT, 64K	$249

Mac Plus/Classic Ethernet Adapter

SCSI Ethernet Thick/Thin/10BaseT	$319
10BaseT Hub with 14 Ports	$639

Shiva

NetModem 2400	$339
NetModem 9600	$1179
NetModem/E	$1685
Ethergate	$1320

Memory and Cache Cards

1mb - 8 - 80ns Simms	$36
2mb - 8 - 80ns Simms	$89
4mb - 8 - 80ns Simms	$145
16mb - 8 - 80ns Simms	$865
1mb Classic Simms	$55
1mb FX Simms	$39
4mb FX Simms	$155

MICRON TECHNOLOGY, INC.

Mac II or SE/30 8-bit Video Card	$289
Mac IIci Cache Card	$199

Fax Modems and Modems

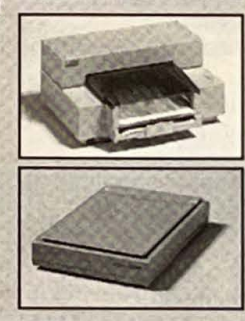
Abaton 2400/9600 Interfax	$249
DoveFax 2400/9600 Fax Modem	$259
DoveFax Plus	$319
EMAC 2400 Modem with MNP 5	$145
3C 2400/9600 Fax Modem	$189
3C 2400 Modem	$97

Educational Corner

HP DeskWriter Printer $439
- 300 dpi • 1-2 ppm
- AppleTalk and RS-422-A Serial Interface
- Built-in sheet feed (up to 100 sheets)
- **FREE cable!**

HP DeskWriter C Printer $749
- 300 dpi • 1-2 ppm
- 4-7 mins for full color
- AppleTalk, RS-422-A Serial Interface
- Built-in sheet feeder up to 100 sheets
- **THREE Year Warranty!!**

HEWLETT PACKARD



HP ScanJet Plus Scanner $1049
- 300 dpi scanning for both DTP (image) and OCR (text) applications
- **Includes MAC Interface**
- Includes color-image editing & grayscale software

HP ScanJet IIc Scanner $1349
- High quality 400 dpi monochrome & color scanning
- Fast, one-pass image scanning
- **Includes MAC Interface**
- Enhanced OCR accuracy with HP AccuPage software (Optional)
- Optional Automatic Document Feeder

SAMPO AMERICA

The Mac OfficePRO II Graphic System
- 20" high resolution monochrome display
- 1024 X 768 at 72 dpi • 1-bit Lapis Video Card

$749

General Information . . .
- Visa and Mastercard accepted. No surcharge. Credit card orders are billed at time of shipment.
- Prices good for stock on hand. All prices subject to change without notice.
- University POs accepted with NET 30 terms. Corporate POs accepted upon APPROVAL.
- All shipments are FOB origin. Prices do not include freight. COD orders accepted, limit $1500.

Warranties . . .
- All items manufactured by ClubMac are returned to ClubMac for warranty repair.
- All items carry manufacturer's warranty.

Money Back Guarantee . . .
- All items manufactured by ClubMac carry a 30 day money back guarantee.
- ClubMac provides 30 day money back guarantee on all other products if manufacturer offers guarantee.
- Laser Printers, Scanners, Software, Monitors, and special order items do not carry a money back guarantee.
- All implied guarantees do not apply to price reductions. Some limitations apply.

Returns . . .
- Any product that is returned WITHOUT a RMA number will be refused and sent back to customer at customer's expense. Call for RMA number. Proof of purchase is REQUIRED.

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MACDIRECT

Specialists in Mac Storage

Fujitsu Special!

Fujitsu 45 Internal $198
Fujitsu 90 Internal $298
Fujitsu 135 Internal $378
Fujitsu 185 Internal $498

- 3 Year Warr.50,000 Hrs MTBF
- 14ms access time!
- Incredibly Reliable!
- Perfect internal for all Macs!*

- All 3.5" Drives are available in zero footprint (including a 40watt power supply, and dual AC outlets), or micro cabinets as well as internal for all Mac's.
- All 5.25" Drives are available in zero footprint external (including a 65 watt power supply, cables, and ext. terminators) or as internals for the Mac II, IIx, and IIfx.

Fujitsu Drives

		Internal	External
45 MB	3.5" Low Profile/Low Power3yr warr, 50,000MTBF	$198	$248
90 MB	3.5"3yr warr, 50,000 MTBF	$298	$368
135 MB	3.5"3yr warr, 50,000 MTBF	$378	$448
185 MB	3.5"3yr warr, 50,000 MTBF	$498	$568
330 MB	3.5" 5 yr warr., 200,000 MTBf*, 9ms Access	$1298	$1398
425 MB	3.5" 5 yr warr., 200,000 MTBf* 9ms Access	$1448	$1548
520 MB	3.5" 5 yr warr., 200,000 MTBf* 9ms Access	$1548	$1648
357 MB	5.25" Full Hght 16ms 200,000 MTBf*	$1198	$1298
680 MB	5.25" Full Hght 16ms 200,000 MTBf*	$1348	$1448
1.2 Gig	5.25" Full Hght 11.5ms 200,000 MTBf*	$2098	$2198

Introducing Hitachi Drives

5 Year Warranty! 150,000 Hours MTBF!*

		Internal	External
425 MB	3.5" 5 yr warr. 13ms 150,000 MTBf*	$1398	$1498
1.6 Gig	5.25" Full Hght 12ms 150,000 MTBf*	$2798	$2898

* Mean Time Between Failure is the average life expectancy of a drive.

DAT Tape Backup

WangDat 1.2 Gig Capability $1498
ArDat 1.2 Gig Capability.....$1498

- Up to 10 mb per minute backup time
- Includes SoftBackup II for Fast network and unattended backup capabilities

SyQuest 44MB & 88MB Removables

44MB REMOVABLE.....$448.00
88MB REMOVABLE.....$648.00

- 19ms Access time
- Both Drives include Cartridge
- Dual AC Outlets, 40 Watt power supply
- SCSI Select and 2 Year Warranty

Ricoh Optical

600 MB Optical $1998

- Read/write reliable storage
- 66ms Access Time
- Great for archiving, color scans etc.

Introducing CD ROM

Toshiba 3301.....$568

- Includes driver CD carrier and cables
- 325ms access time

Chinon CDC-431 .....$598

- Includes driver CD carrier and cables,
- 350ms access time, includes 12 function audio remote control

JX-9500PS Sharp Printer 35 Fonts

JX-9500PS 35 Fonts $1598.00

- 2.5 mb Ram Memory
- Adobe Postscript
- 35 Fonts, 6 page per minute
- Letter, legal and transperancies
- Includes Appletalk interface!
- Sharp is the manufacturer of the engine of the TI Microlaser.

800 K Floppy Drive $99

These Fujitsu External floppy drives have a one year warranty. Completely compatible. These are brand new slimline drives and they look great!

These drives retail for $259!

Fujitsu 800k
$99.00!

Quantum Drives/Wren Drives

	Internal	External
Q 52 MB 3.5" LPS	$248	$338
Q 105 MB 3.5"LPS	$368	$448
Q 120 MB 3.5"	$578	$668
Q 170 MB 3.5"	$598	$688
Q 210 MB 3.5"	$688	$748
Wren 337 MB RUNNER	$1398	$1498
Wren 600 MB F/H	$1598	$1698
Wren 630 MB RUNNER II	$1998	$2098
Wren 1.2 Gig	$2298	$2398

Monitors!

20" Phillips Color Sys. w/RasterOps 8Bit.....$1598
w/National Semiconducter 24Bit.....$2398
19" Ikegami Mono Sys. $798
19" Ikegami Grey Scale Sys. $1098
19" Trinitron Color Sys. $2398
Ikegami CT-20...Natl. Semi. 24Bit $3198
14" GoldStar Color Sys. $388
14" NEC Color System.....$438

The NEC MacSync is plug compable with IIsi, CI and the LC

The NEC MacSync is plug compable with IIsi, CI.
All monitor systems except NEC include interface board and cable.

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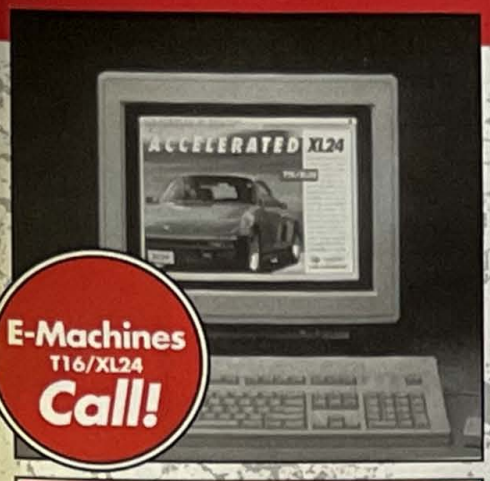

E-Machines T16/XL24 Call!

REMOVABLE DRIVES

Eagle™ Syquest Drive $499

Eagle™ Duet $995 with Two Cartridges

Eagle™ 88 $895

All Eagle Drives include a Metal Case, 15 megs of Shareware and are available with a 5 Year Warranty

Mass Micro
DataPak $629
DataPak 88 $1095

PLI
Infinity 40 Turbo $649
Infinity 88 Turbo $895

Bernoulli
90 Meg $895!

DAYSTAR DIGITAL

NEW!!! ONE CARD FITS ALL!! INCLUDING THE IIsi, LC & SE/30

DayStar again leads the Mac world by delivering incredible power, convenience and cross-platform transportability for the Mac. Buy **one card** now and transfer it to your new Mac when you trade up. Triple your performance. Optional math coprocessor available. 100% compatible with all standard software.

PowerCache 25 MHz, 40MHz & 50 MHz available for Mac II, IIx, IIcx, IIci, IIsi, LC, & SE/30!

PowerCache 33 MHz	$699
PowerCache 40 MHz	$895
PowerCache 50 MHz	CALL!!
SCSI PowerCard	$995
RAM PowerCard	$499

ALSO NEW!!
A CACHE CARD FOR BOTH THE IIci & IIsi!
FastCache IIci & IIsi $269 & CALL!!

MONITORS

E-Machines

E16 (why buy a Pivot?)	Call!
T16 w/ Futura cards	Call!

Ikegami

CT20" Trinitron w/8 bit card	$2565
CT20" Trinitron w/24 bit card	$3295
CT20" Trinitron w/24 bit accelerated card	$3895
RasterOps Systems	Call!
Seiko 14"& RasterOps 24s	$979
SUPERMAC Systems	Call!

Buy this scanner – get an EMAC Silhouette trackball for $201

Abaton Scan 300/Color $995 $1295 w/PhotoShop

NewLife For the Mac SE, Plus, Classic

Classic Accelerator!™ 16 MHz 68030 Call!

16 MHz or 20 MHz CPU, 20 Meg of RAM using 4 Meg SIMMs, optional 68882 co-processor, System 7.0 compatibility, bootable RAM disk, optional video adaptors permitting use of two page monitors and optional Virtual 3.0. Tired of the big Macs kicking sand in your face? Get a Classic Accelerator!™.

SE 16 MHz 68030 (w/4 SIMM Sockets)	$525
SE 25 MHz 68030 (w/4 SIMM Sockets) *BEST VALUE, MacWorld, July '91	$795

Abaton InterFax 24/96 $285

FAX MODEMS

Global Village Teleport	$179
Challenger ™	
VP24/96SR™ (send & receive)	$149
Dove	
DoveFax	$275
DoveFax Plus	$359
Prometheus	
9600M Plus V.32, V.42, V.42bis	$599
14.4/9600 Ultima V.32 bis, V.42bis	$689
UDS Motorola	
FasTalk FAX32 V.32, V.42, V.42bis	Call!

DATA MODEMS

2400 bps	
Challenger VP2400™	$79
Global Village Teleport	$125
Computer Peripherals, Inc. Viva 24 5 Year Warranty!	$125
9600/14,400 bps	
Computer Peripherals, Inc. Viva 9642e V.32, V.42, V.42bis	$479
Hayes Ultra 144 V.32 bis	Call!
US Robotics "Fastest V.32 bis", InfoWorld, 7/1/91	
Courier14.4 V.32 bis, V.42bis	$695
Courier HST Dual Standard V.32bis	$895

Hayes Ultra 9600 $675 V.32, V.42 bis

Microtek 600ZS $1425

SCANNERS

Sharp

JX-450	Call!
JX-600	Call!

UMax
UC630 Color $1395 (600 dpi w/PhotoShop)

Adobe PhotoShop $445 SPECIAL!

Caere OmniPage $479 SPECIAL!

NEW! microLaser Plus

- 9ppm & 16ppm
- 1.5 meg RAM Standard
- Upgradable to 4.5 meg RAM
- Mac & PC Compatible
- Upgradable to Turbo Call!

microLaser *Plus* PS17 / PS35 $1265 / $1565
microLaser *Plus* XL PS17 / XL PS35 $2425 / $2725

microLaser Memory $89

We Stock All Accessories & Supplies for All Printers

NEW! microLaser Turbo

- 9ppm & 16ppm, Weitek RISC & 68000 Processors
- 2.5 meg RAM Standard, Upgradable to 10.5 meg
- Postscript Level 2
- Mac & PC Compatible with 3 Interface Ports
- Automatic Port and Emulation Switching
- 6 Times Faster Than Other Postscript Printers

microLaser Turbo & Turbo XL Call!

SIMMS

$125 4 Meg SIMMS (with trade in)

$39 1 Meg 80ns

CALL! 2 Meg 80ns

REMOVABLE MEDIA

SYQUEST $68 Per 45 Meg Cartridge

$129 Per 88 Meg Cartridge

BERNOULLI $145

OPTICAL CARTRIDGES $125 512K & 1024K

QMS	PS410	$70/mo* $1795	NEC	Silentwriter2 Model 90	$1549
	PS815MR, 825MR	600 dpi Call!		Silentwriter2 Model 990	$2895
GCC TECHNOLOGIES	PLPII, PLPIIS	Call!	Abaton	LaserScript LX	$1555
	BLPII, BLPIIS, BLP Elite	Call!	CoStar	AddressWriter	$499
	WriteMove, WriteImpact	Call!	CoStar	LabelWriter II/II Plus	$189/$299

8:30 am – 7:00 pm CDT M-F
10:00 am – 4:00 pm CDT Sat
Sunday: Call, you may get lucky

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303-447-3973 Corp. Fax
303-447-8051 Fax

East Coast Sales & Corporate Office
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Tampa, Florida 33635

800-MAC-0052 East Coast
813-886-9534 International
813-888-9535 Corp. Fax
813-881-0634 Fax

Colorado Office Grand Opening
November 1, 1991

CPU's and More...

Free 1200 Baud Hayes Modem !
Buy any Apple system and a monitor from Mac and More and we'll give you a modem. But supplies are limited so place your order while they are still in stock!!!

Macintosh Classic	$845.00
Macintosh Classic 2/40	$1199.00
Macintosh LC 2/40	$1599.00
Macintosh IIsi 3/40	$2199.00
Macintosh IIci 5/0	$2799.00
Macintosh IIfx 4/0	New Low Price
Mac IIsi NuBus or 030 Direct Card	$189.00
Apple Extended Keyboard	$160.00
Apple Standard Keyboard	$90.00
MacPro Plus Extended Keyboard	$124.00

The New Macs are here!!!

Macintosh Classic II	CALL
Macintosh PowerBook 100, 140, & 170	CALL
Macintosh Quadra 700, and 900	CALL

Systems and More...

Mac LC Student Package $2443
4 Mb of RAM, 40 Mb internal hard disk, Mouse, Microphone, Keyboard, Apple 12" RGB monitor and StyleWriter printer.

Mac IIsi Starter Package $2899
3 Mb of RAM, 40 Mb internal hard disk, Apple standard keyboard, Mouse and an Apple 13" RGB Color monitor.

Mac IIsi Office Package $4299
5 Mb of RAM, 120 Mb internal hard disk, mouse, microphone, Apple standard keyboard, Apple 13" RGB monitor, and Personal LaserWriter LS.

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PrecisionColor 8 & 8si Interface Card	$511.00
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DirectColor/8 with Color Display/21	$4088.00
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Adobe Photoshop	$599.00
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ETC 120 Mb Connor-1", 19 msec	$379.00
ETC 120 Mb Maxtor Cheyenne, 15 msec	$389.00
ETC 170 Mb Quantum PRO, 11 msec	$569.00
ETC 210Mb Quantum PRO, 10 msec	$639.00
ETC 213 Mb Maxtor LXT, 15 msec	$599.00
ETC 340 Mb Maxtor LXT, 13 msec	$999.00
ETC 535 Mb Maxtor LXT, 13 msec	$1589.00
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ETC 337 Mb WREN-Runner-1, 10.7 ms	$1299.00
ETC 613 Mb WREN-5, 16.5 msec	$1399.00
ETC 676 Mb WREN-6, 15.5 msec	$1449.00
ETC 676 Mb WREN-Runner-2, 12 ms	$1749.00
ETC 1.05 Gig WREN-7, 15msec	$2099.00
ETC 1.2 Gb Maxtor	$2149.00
External	
ETC 52 Mb Quantum LPS, 17msec	$329.00
ETC 105 Mb Quantum LPS, 11 msec	$439.00
ETC 170 Mb Quantum PRO, 11 msec	$639.00
ETC 210Mb Quantum PRO, 10 msec	$729.00
ETC 213 Mb Maxtor LXT, 15 msec	$689.00
ETC 340 Mb Maxtor LXT, 13 msec	$1099.00
ETC 535 Mb Maxtor LXT, 13 msec	$1679.00
ETC 307 Mb WREN-4, 14 msec	$1299.00
ETC 337 Mb WREN-Runner-1, 10.7 ms	$1449.00
ETC 613 Mb WREN-5, 16.5 msec	$1549.00
ETC 676 Mb WREN-6, 15.5 msec	$1599.00
ETC 676 Mb WREN-Runner-2, 12 ms	$1899.00
ETC 1.05 Gig WREN-7, 15msec	$2249.00
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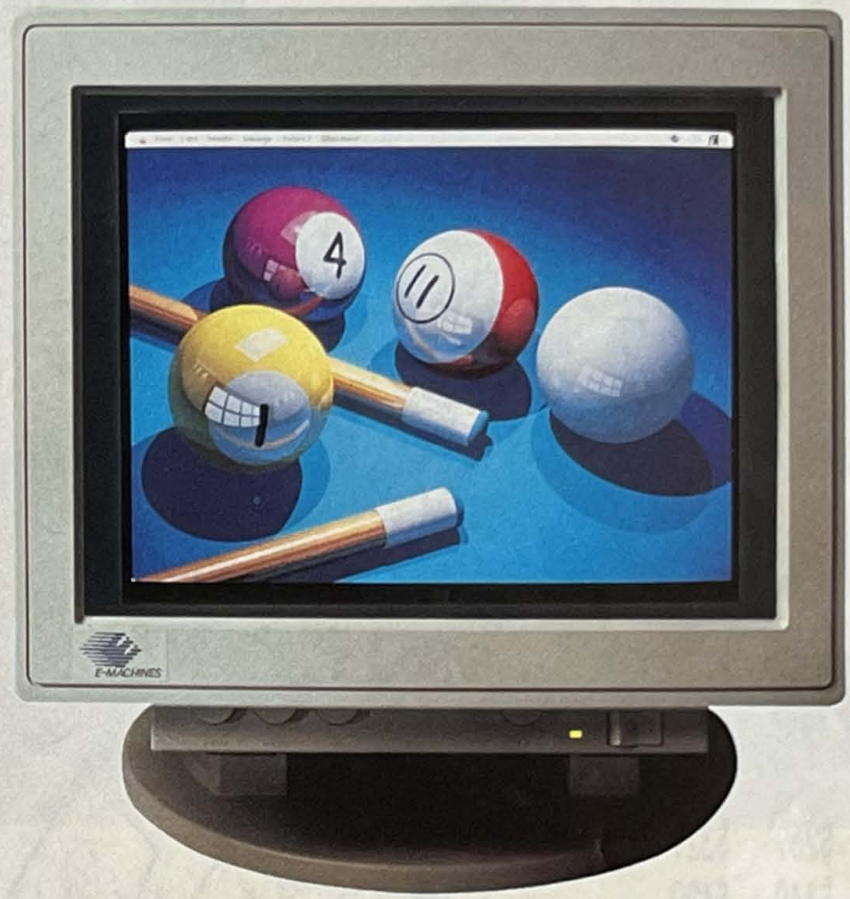

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Now delivers full-page 24-bit color with Mac Quadra built-in video!

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ALL HOLLOW'S EVE. WOODEN-STAKE IN HAND, WHOLESALE SALLY WAS ABOUT TO SOCKET TO THE HUNGRY VAMP WHO HAD DROPPED IN FOR A GIGABYTE. HE TOOK A QUANTUM LEAP BACKWARD, TORE OFF HIS CAPE, AND SCREAMED 'HAVE YOU LOST YOUR MEMORY?!! YOU COULD HURT SOMEONE WITH THAT!' IT WAS WHOLESALE SAM! BACK ONTRACK. SALLY AND SAM HOPPED INTO THE BATMOBILE AND WENT FOR A HARD DRIVE TO MAC'S FOR A HALLOWEEN BASH. SAM AND SALLY TIPTOED UP TO HIS FRONT PORCH, LEAVING ZERO FOOTPRINTS. MAC SUFFERED TO THE DOOR AND HISSED, 'SSSO GLAD YOU COULD MAKE IT.' HE WAS DRESSED IN A SOLID METAL CASE AND LOOKED LIKE A CROSS BETWEEN R2D2 AND SIR LANCELOT ENGROSSED IN THE FESTIVITIES, SALLY AND SAM FORGOT ABOUT THE NEAR MISHAP THAT TOOK PLACE THE AD BEFORE. LATER, WANTING TO GO HOME, SALLY MOUNTED HER HORSE, BRACKETS, WAVED AND CALLED, "HI-OH!!" BRACKETS, AND TO ALL A GHOULISH NIGHT!"

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		internal	external
52LPS	9ms	$229	$279
105LPS	9ms	$329	$379
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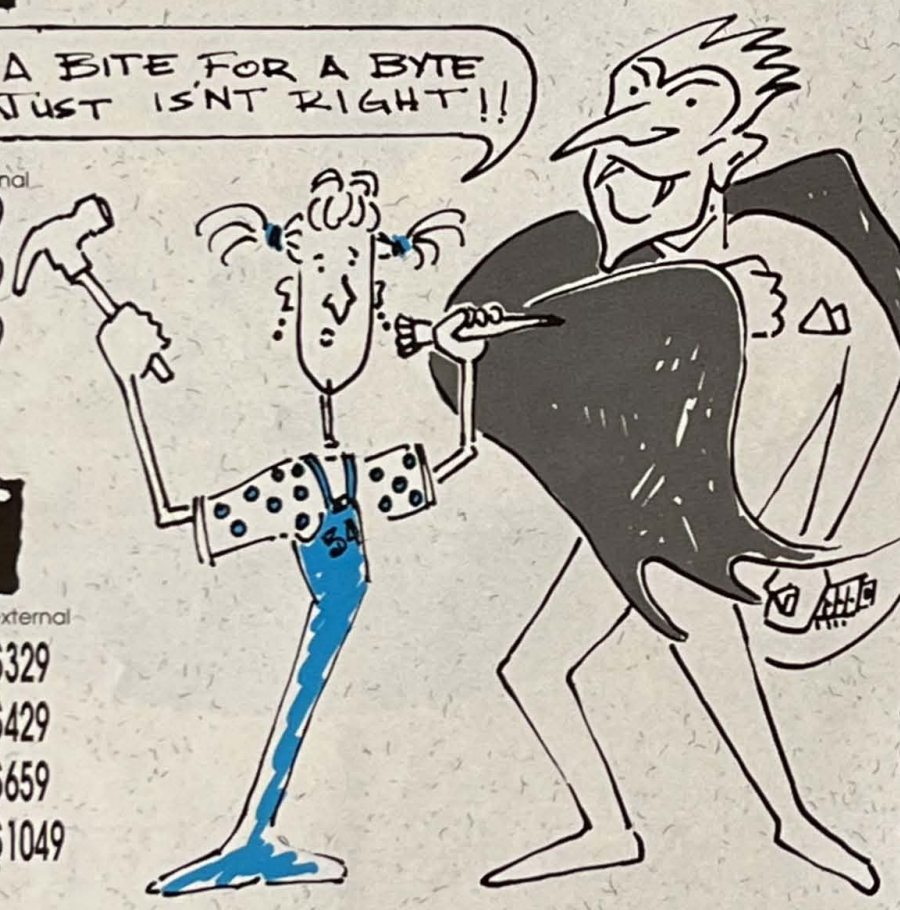

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60Mb	28ms		$229
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337Mb	11ms		$1199
676Mb	15ms		$1579
1 Gig	12.9ms		$1999

Maxtor

		internal	external
80Mb	17ms	$269	$329
125Mb	15ms	$349	$429
210Mb	15ms	$599	$659
340Mb	14ms	$979	$1049

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44Mb Removable Drive with Cartridge	$429
Additional cartridges	$66
88Mb Removable Drive with Cartridge	$649
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		external
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1000Mb	14ms	$2099
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1Mb	(1x8-80ns)	$36
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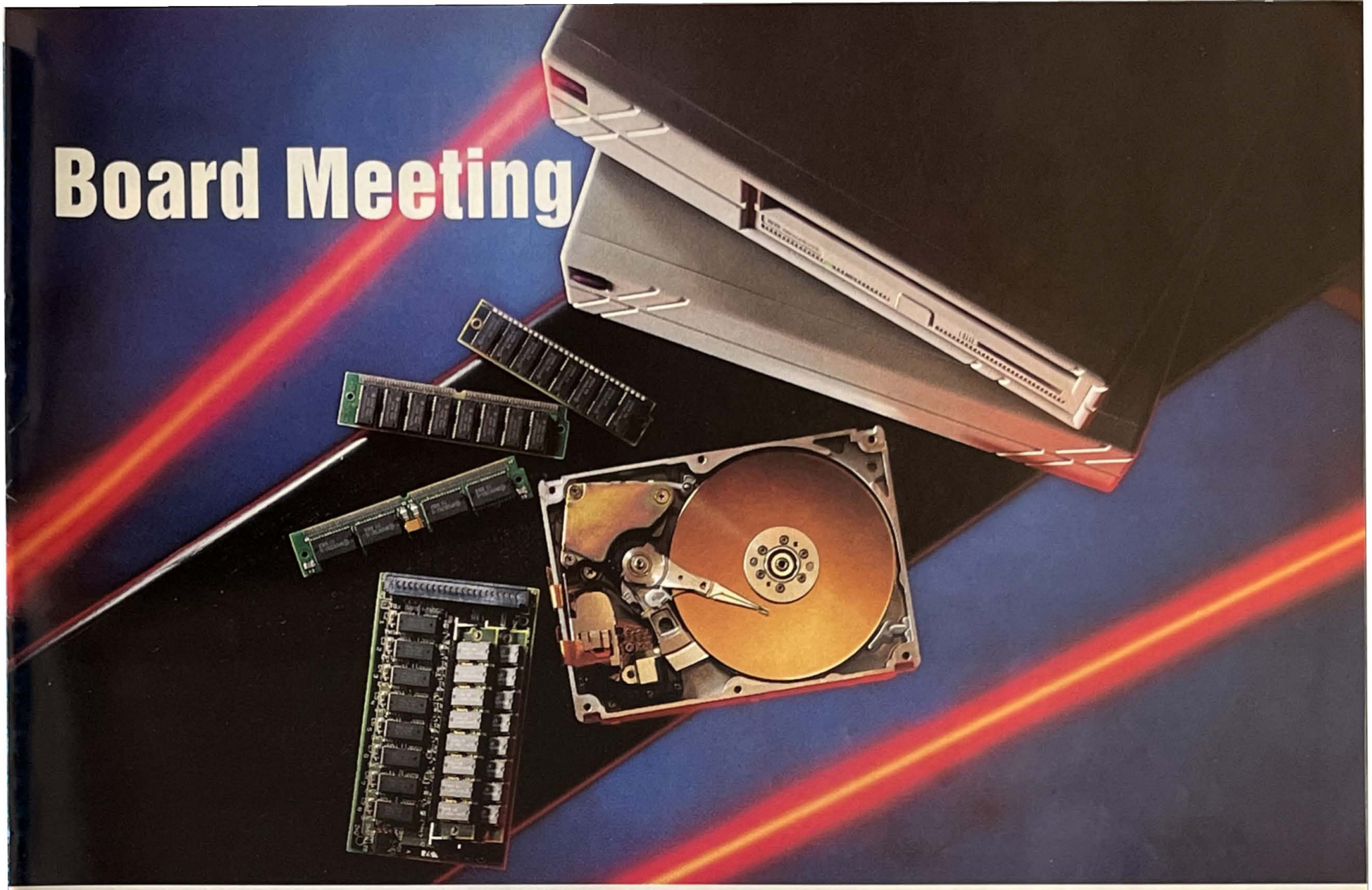

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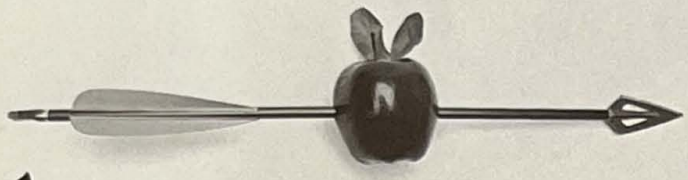

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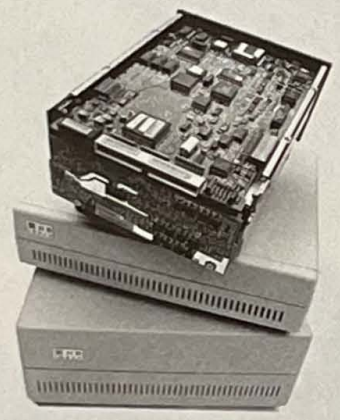

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Go for the gold!

MacTel manufactures and tests our memory modules in-house to ensure the highest possible quality and reliability. All our SIMMs use ***gold traces and contacts*** for greater conductivity and durability. Our field test failure is *less than 1%*! In fact, we have so much confidence in our memory products that we back them with a lifetime warranty.

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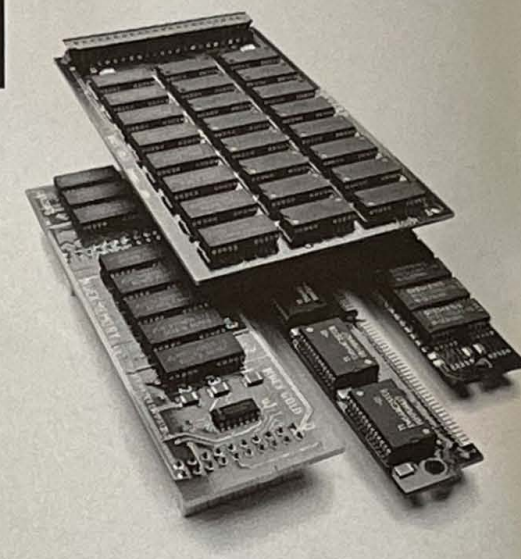
- 1 Mb x 9 SIMM, 70/80 ns $43
- 3 Mb Classic memory $99
- Mac LC V-RAM upgrade $69
- 4 Mb surface mounted SIMM, 80 ns, (IIcx, IIci, IIfx, IIsi and LC) $139



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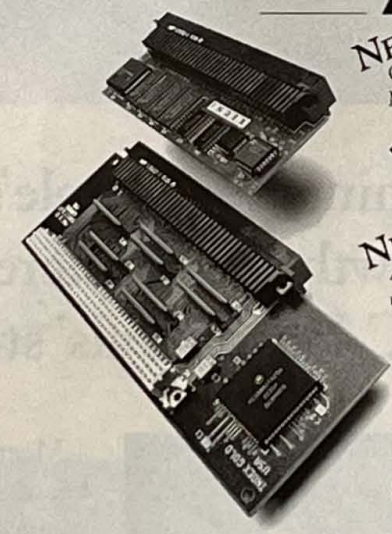
- ***Maxima*** virtual memory managment software $40

Accelerator Boards



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On-board 68882/20 MHz math co-processor with adaptor for Macintosh IIsi. ***Benchmark*** software included.

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MacTel offers you a number of storage and backup solutions, including a complete line of Index hard drives. Three of our drives have been rated 4 mice by *MacUser* Labs: the MacTel 45R drive (2/91), the Index 1.2 Gb drive (7/91) and the MacTel 2 GB DAT drive (10/91).

The Index HD formatter is System 7 compatible and supports partitioning, password protection and is A/UX compatible.

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- **Index 45R w/1 cartridge** $479
- Index 88R w/1 cartridge $799
  Index 45R and 88R are bundled with ***Backmatic®*** and ***AutoSave®***
- SyQuest cartridge SQ 400 ..... $69
- SyQuest cartridge SQ 800 ..... $149
- **2 GB DAT drive *w/Retrospect* software and 1 tape** $1499

NEW
- DAT Drive Cleaning Kit $19

NEW
- 1 GB Tahiti optical drive w/1 cartridge $3699

Index Hard Drives

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	Internal	External
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105 Mb, 12 ms, Slimline	$349	$399
210 Mb, 12 ms	$619	$699
425 Mb, 12 ms	$1449	$1529

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330 Mb, 10.7 ms (Runner)	$1299*	$1399
640 Mb, 16 ms	$1459*	$1559
650 Mb, 10.7 ms (Runner)	$1849*	$1949
1.2 Gb, 16 ms	$2199*	$2299

*Mac II and IIx only

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MacTel's Index line of ADB extended keyboards have an 105-key layout, 15 function keys, cursor control keys and number pad. The French, German and Swiss keyboards come with system software.

Index extended keyboard

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- French, German, Swiss $119

NEW
- Spanish $119

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- Mac IIsi ..... $Call
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NEW

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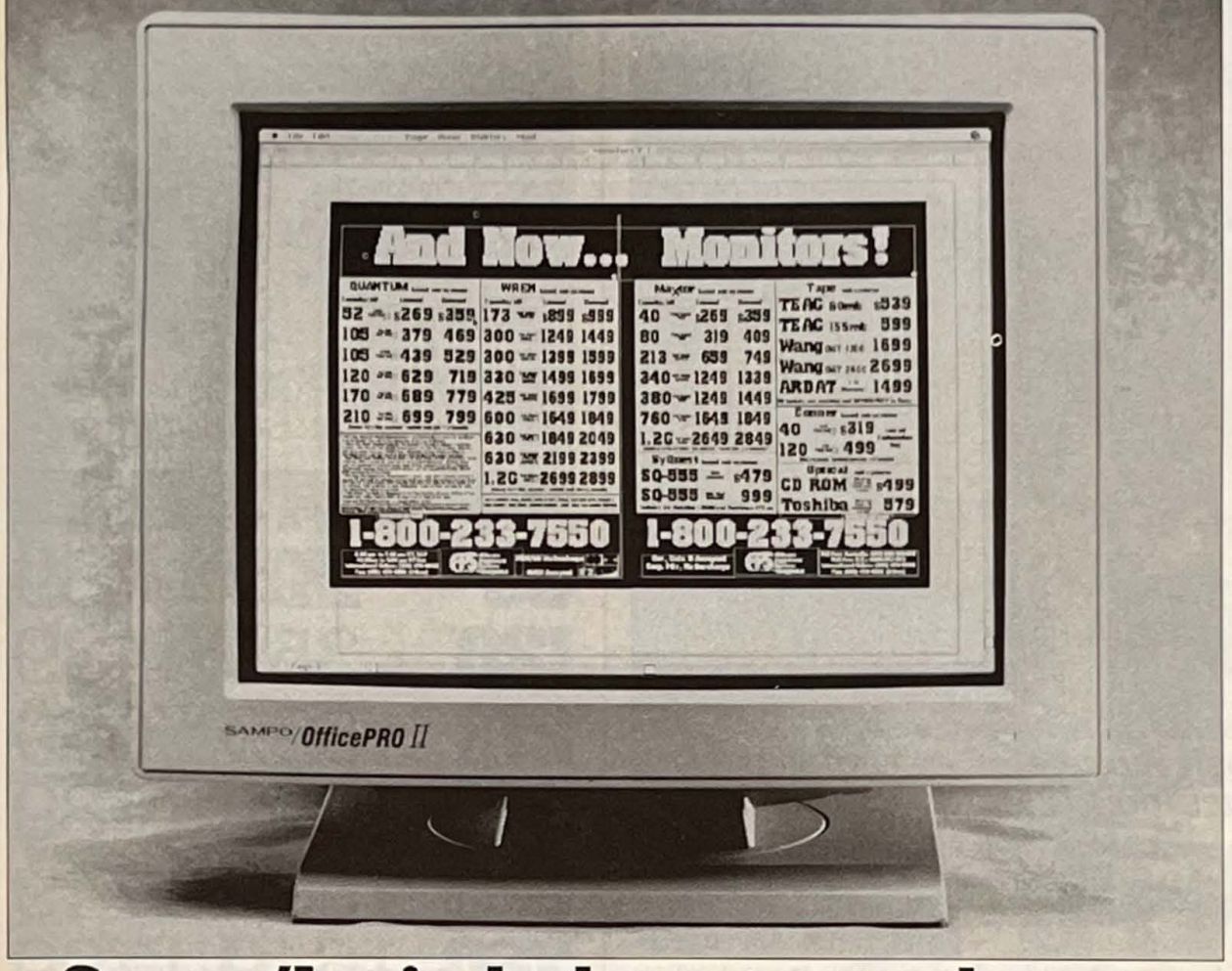

Res ..... 1024 x 768
Tube..... 20" diag.
DPI 72
Interface..... Lapis
Display ..... Mono
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Sweep Hor 63.9Hz
Power Con 65w
Voltage ..10-230V sel.
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FCC .....Class B
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High-resolution, black and white Macintosh display system featuring:

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20" diagonal monitor with 1024 x 768 pixel resolution.

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170	*Pro-170s*	499	589
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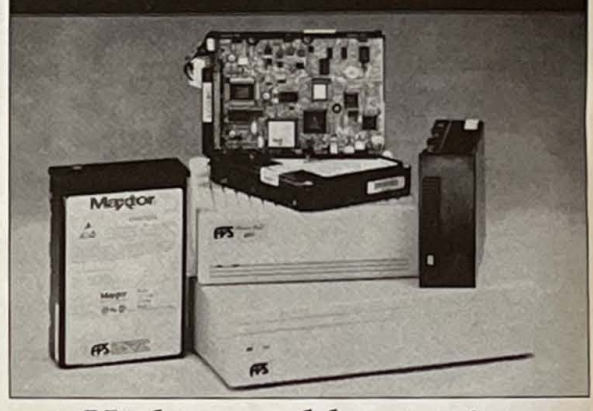

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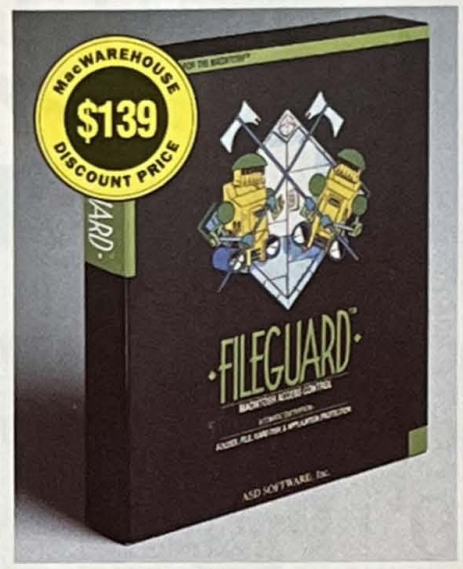

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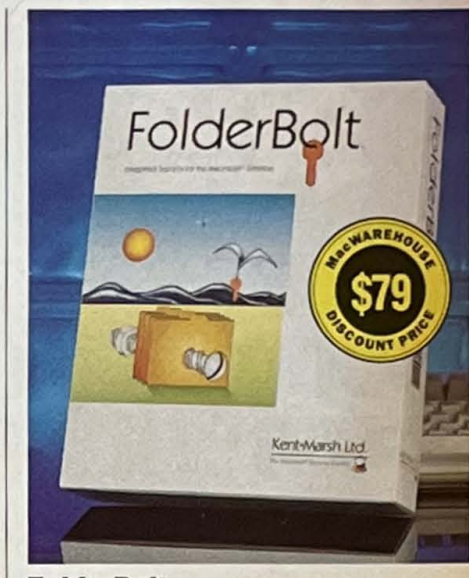

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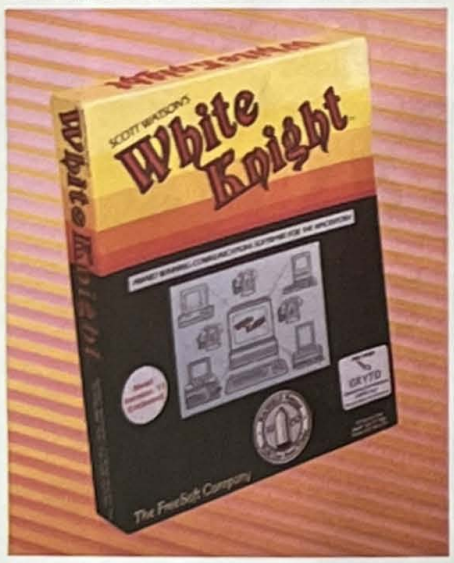

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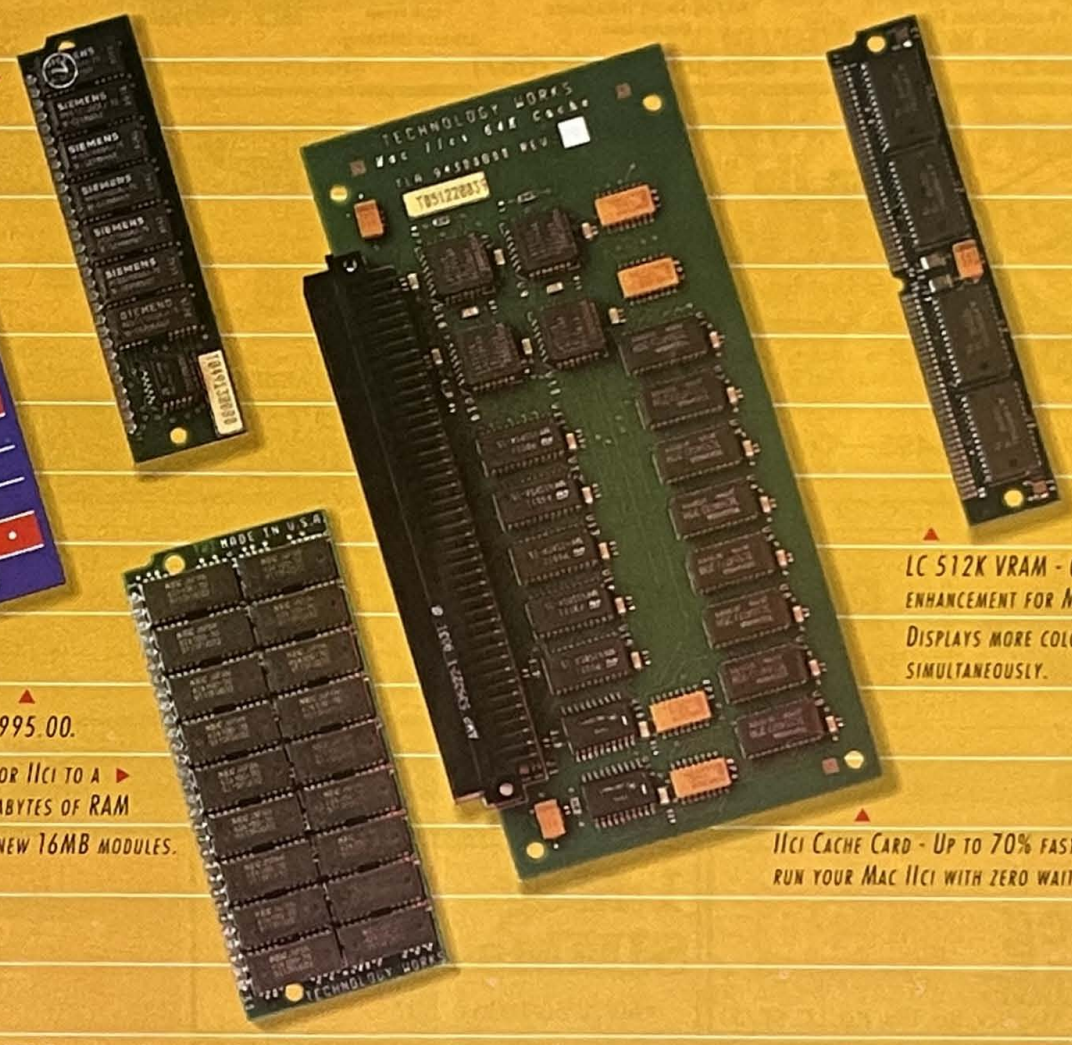

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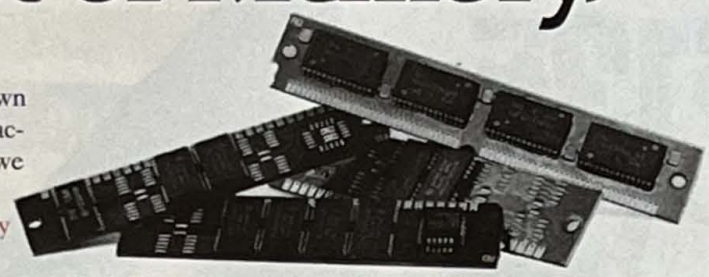

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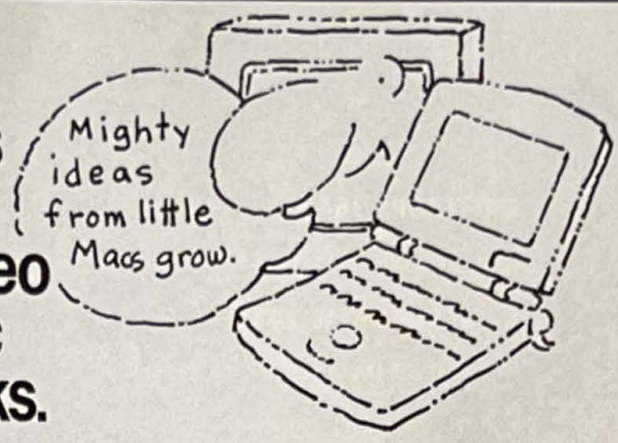

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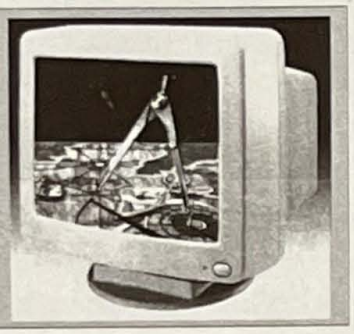

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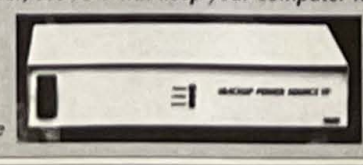

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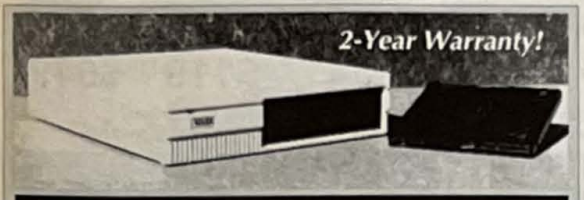

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BUSINESS WATCH

- Industry news
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Motion Works makes public move; multimedia publisher due for IPO

By Raines Cohen

Vancouver, British Columbia — Multimedia developer Motion Works Inc. last week quietly went public. While an initial public offering is still months away, the company, now called Motion Works Corp., began trading on the Vancouver Stock Exchange here through a reverse takeover.

Founded about three years ago, Motion Works develops multimedia authoring systems, including AddMotion, which adds color painting and animation to HyperCard, and ProMotion, a stand-alone animation application to ship by year's end. At the Comdex/Fall '91 show in Las Vegas last week, the company showed its first Windows product, a version of ProMotion that reportedly can exchange animations with its Mac counterpart.

The Hughes Lang Group, a venture capital firm here, invested in Motion Works and lent it two staffers as part of the preparation for the offering.

With the assistance of Hughes Lang and other private investors, Motion Works earlier this year bought Argosy Resources, a shell company listed on the Vancouver Stock Exchange. Trading in Argosy, also now renamed Motion Works Corp., was halted six months ago before the deal resumed last week.

Randy McCallum, Motion Works co-chair, said sales increased substantially over the summer, and the company doubled in size, to its current 15 employees. "Our stability was in question six to eight months ago," McCallum said. "We believe now it is stronger than ever, since we filled the gaps where we were weak. We believe with the people we have, we'll be able to compete."

He said the company will make an IPO sometime next month to raise $1.5 million. The price per share will depend on the fluctuations of the 800,000 outstanding shares in Argosy.

This isn't the first reverse takeover for this purpose. West Des Moines, Iowa-based CE Software Inc. used a similar tactic to become publicly traded last year. □

Mac sales in Mexico double, could go higher if pact passes

By Reese Erlich

Mexico City — Macintosh sales in Mexico have more than doubled in the past year and will shoot even higher if the U.S.-Mexico free-trade pact passes, according to the Apple distributor here.

Jesus Maria Trevino, general director of Apple's Mexican distributor, Genetec, estimated that Macs now have a 5 percent to 6 percent share of Mexico's minicomputer market. "That's pretty good for only 18 months," he said, explaining that the Mexican government has allowed importation of foreign-made microcomputers only since 1990.

He noted that the government still imposes a 20 percent tariff on imported Macs, shooting the price sky-high for consumers. For example, a Mac IIfx 4/80 with a 13-inch Apple monitor lists for the equivalent of $11,516 in U.S. currency. Dealers usually discount high-end machines by about 20 percent to 25 percent, according to Arturo Lee, Genetec commercial director.

Allan White, managing director for Apple Latin America, said Mac sales are growing rapidly in Mexico but that high tariffs are limiting sales.

"Small and medium-size businesses don't have the money to spend on a complete networked system," he said. "But the outlook has changed substantially in the past six months" since the release of the less-expensive Classics and LCs, White said.

If the U.S.-Mexico free-trade pact is negotiated and passed by legislatures in both countries, Trevino said, the 20 percent tariff would be eliminated. As a result, he expects that Mac market share will increase to U.S. levels.

Customers currently use Macs mainly for desktop publishing and general productivity, he said. "The corporate executives and secretaries use Macs," said Trevino with a smile, "but the technical departments won't touch them because the Macs are too simple to use."

American-made word processing programs function well in Spanish, according to users, but Mexican software companies have had to modify spreadsheets and payroll

See Mexico, next page

Breaking the rules in Switzerland

Gray marketer jumps gun on debut

By Andrew Gore

Lausanne, Switzerland — While Oct. 21 was supposed to have been the first public showing of the Mac PowerBooks and Quadras, computer buyers in Switzerland were getting unauthorized peeks at the new machines at least a week earlier.

Data Fox SA, a chain of Mac resellers based here, put a Mac Quadra 700, Quadra 900, Classic II and PowerBook 100 on display for customers to test-drive in its Lausanne retail store from Oct. 14-16, according to Albert de Heer, Data Fox CEO.

Under normal conditions, this breech of Apple's non-disclosure rules would cause a reseller to lose its Mac authorization. The only problem is, Data Fox is not an authorized Apple dealer.

Data Fox has 55 Mac outlets in Switzerland, including five value-added resellers and five superstores. His company will sell about $20 million worth of Macs in 1991 and expects to more than double that in 1992, de Heer said. He claims Data Fox's sales represent 20 percent of all Mac sales in Switzerland.

The company has never been authorized and does not get its Macs from Industrade SA, Apple's exclusive Swiss distributor. Instead, Data Fox imports its Macs directly from the United States through gray market channels, for about 25 percent less than a reseller would pay, de Heer said.

Over its four-year history his company has tried to become authorized, de Heer said. "The reason we showed the new CPUs is to prove to Apple that we're big enough to have a relationship with," he said.

Data Fox met with Industrade a year ago, but de Heer said that the distributor's lack of marketing savvy convinced him that gray marketing was still the way to do business.

While legitimate Mac resellers in Switzerland aren't thrilled with Data Fox, they agreed that Industrade is a problem. "We feel that Industrade is incompetent," said Oliver Davin, executive director for CSL Computer Shop, a chain of authorized resellers also based here.

Apple spokeswoman Cindy McCaffrey said it is aware of the Swiss gray market situation and plans to accelerate efforts to cut off gray marketers' U.S. Mac connections in 1992. □

Distributor packs 1-2-3 with IIci, IIsi

By Andrew Gore

Cambridge, Mass. — Lotus Development Corp. earlier this month launched its first salvo in the war to dominate the Mac spreadsheet market. Every Mac IIsi and IIci sold by Intelligent Electronics' Apple dealers now include a coupon for a free copy of Lotus 1-2-3 for the Macintosh and a 1-2-3/Mac promotional video.

The promotion started Oct. 1 and runs until Dec. 31. It is available only through Connecting Point, TCBC and Entre Computer Centers dealers, all of which get their Macs from Denver-based Intelligent Electronics Inc., the largest distributor of Macs in the Unit-

See Lotus, next page

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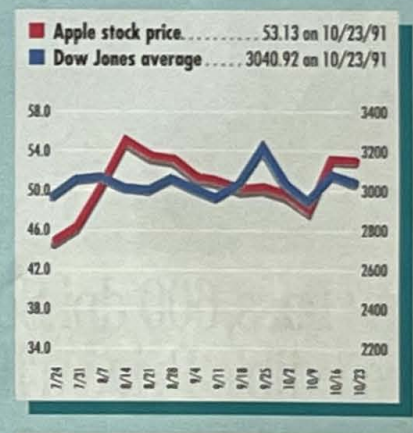
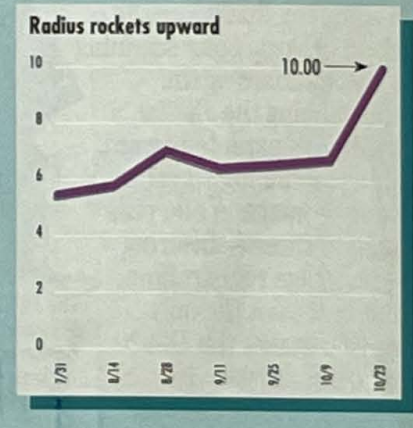
Maxtor	5.13	-2.38
Quantum	9.75	-3.70
Seagate	7.75	-7.46
INDUSTRY INDICATORS		
Businessland	0.88	0.00
DEC	58.63	-2.09
IBM	98.50	-2.96
Motorola	64.00	4.28
Sun	25.38	-7.73
Dow Jones	3040.92	-0.68

Compiled by Nordby International Inc.





Fresh on the heels of a so-so fourth-quarter earnings report, Radius Inc. had a good week on Wall Street. When the dust had settled, Radius' stock had shot up 25 percent to $10 a share for the week ended Oct. 23. Last week, the company reported fourth-quarter earnings of 13 cents a share, down from 16 cents a share in the same period one year earlier.

Sitka, Tiara Computing join forces

By Margie Wylie

Dallas — In the increasingly cutthroat business of small-scale networking, Sitka Corp. and Tiara Computing Inc. last week joined forces to fend off bigger foes determined to move in on their peer-to-peer networking territory.

The companies announced a technology agreement under which Tiara's 10Net peer-to-peer network for DOS, OS/2 and Windows machines will merge with Alameda, Calif.-based Sitka's next generation, portable OpenTOPS software (formerly SitkaTOPS).

Sitka will integrate 10Net into OpenTOPS and then share the OpenTOPS technology with Mountain View, Calif.-based Tiara.

In a market once dominated by small companies' products, such as Sitka's OpenTOPS, Tiara's 10Net or Artisoft Corp.'s LANtastik, the companies' agreement seems to follow the trend of small vendors fighting to hold onto their niche in the face of competition from larger companies.

Apple's System 7 now includes peer-to-peer networking free of charge and Novell Inc., which currently dominates the LAN market with about a 60 percent share, recently introduced a DOS-based peer-to-peer network system, called NetWare Lite. □

Mexico

From previous page

programs to adapt to Mexican tax laws.

Professor Manuel Gandara, director of the Center for Education Technology and Media, agreed that Macs are likely to gain a greater market share in the near future.

"DOS machines are still the majority," he said, "but I've seen a fast growth of Macs in the last year, especially in the low end. Ease of training has been crucial."

He noted that the Mexican government adopted a DOS-based computer system as its standard some years back. "But those are proving inadequate in some sectors of the Education Ministry," said Gandara, "and it is considering buying Macs for teacher training and course work."

His office center, a branch of the Education Ministry, is already using Macs exclusively. □

Lotus

From previous page

ed States and the promotion's co-sponsor.

Customers who send in the coupon will get a full retail copy of 1-2-3/Mac when it ships later this fall. After the spreadsheet ships, Intelligent Electronics' dealers will include a shrink-wrapped copy of 1-2-3/Mac with every Mac IIsi and IIci purchase.

The Connecting Point bundle is just the first in a series of aggressive promotions Lotus plans, according to Rob Adams, Lotus' Mac product manager. As the last of the major players to ship its new spreadsheet offering, Lotus is determined to make up any lost ground.

Mac managers said the promotion will be a good way to test-drive it, but the deal alone is unlikely to get them to switch from Excel. "We are standardized on Excel for our Mac systems," said Tim Yancy, Mac product manager for Southern California Edison in Rosemead, Calif. "But a promotion like this would help us consider switching to 1-2-3 because it would mean we wouldn't have to make another investment in software to try it out." □

MacWEEK index
PRINTER MARKET SHARE

Breakdown of Macintosh printer market by type of printer

DOT-MATRIX PRINTERS	1990	1991
Apple	89.3%	87.0%
GCC Technologies Inc.	4.0%	4.2%
Seiko Instruments USA Inc.	0.0%	2.9%
Other	6.7%	5.9%
INKJET PRINTERS		
Hewlett-Packard Co.	91.6%	56.9%
Apple	0.0%	33.5%
Eastman Kodak Co.	4.3%	3.8%
GCC Technologies Inc.	1.9%	1.4%
Other	2.2%	4.4%
DESKTOP PAGE PRINTERS (UNDER 14 PPM)		
Apple	84.2%	70.6%
GCC Technologies Inc.	5.1%	16.4%
Texas Instruments Inc.	2.0%	2.0%
QMS Inc.	1.6%	1.8%
LaserMaster Corp.	1.3%	1.7%
NEC Technologies Inc.	0.7%	1.1%
Microtek Lab Inc.	1.0%	0.9%
NewGen Systems Corp.	0.9%	1.0%
Sharp Electronics Corp.	0.0%	0.6%
Other	3.2%	3.9%

Source: Info Corp.

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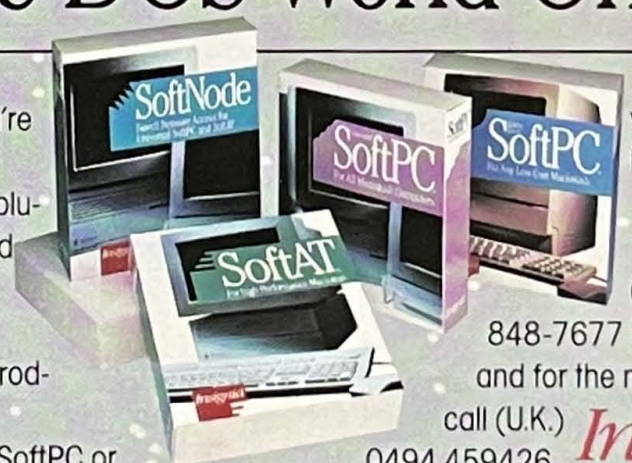

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Availability

From Page 1

The situation was the same on the West Coast, resellers said.

"I have absolutely no new machines I can sell," said Bob Zellin, principal for Di-No Computers Inc., a reseller in Pasadena, Calif. "Realistically, I won't see 170s for at least a month, maybe a few 140s and probably some 100s. I'd guess I'll be lucky to see 20 PowerBooks total by year-end."

The new-Macintosh supply problem goes all the way to the top of the reseller food chain. Both Denver-based Intelligent Electronics Inc. and Pleasanton, Calif.-based ComputerLand Corp., which together distribute about half of all Macs sold in the United States, said they have no PowerBooks or Quadra 700s and don't expect any soon.

"We've only got enough 100s and 140s for our dealers to show," said Steve Asche, director of sales and marketing for ComputerLand. "It looks like it won't be until sometime in November before we'll actually start seeing some shipments to sell. I think we'll turn the corner on supply around the second week of December."

The result of the new-Mac drought, according to dealers, is that volume buyers are frustrated and annoyed, and resellers are taking the brunt of their disappointment.

Pricing and availability of new Macs

● Available January 1992 ● Limited supply ● Available now

CONFIGURATION	DEALER COST*	LIST PRICE	STREET PRICE**	AVAILABILITY
PowerBook 100 2/20	$1,724	$2,299	$1,900-2,000	●
PowerBook 100 2/20 w/floppy	1,874	2,499	2,000-2,200	●
PowerBook 140 2/20	2,174	2,899	2,300-2,500	●
PowerBook 140 2/40	2,399	3,199	2,600-2,800	●
PowerBook 140 4/40	2,624	3,499	2,800-3,100	●
PowerBook 170 4/40 w/modem	3,449	4,599	3,700-4,000	●
Quadra 700 4/floppy	3,932	5,699	4,800-5,300	●
Quadra 700 4/80	4,415	6,399	5,450-6,000	●
Quadra 700 4/160	4,829	6,999	5,900-6,500	●
Quadra 700 4/400	5,312	7,699	6,700-7,200	●
Quadra 900 4/floppy	4,967	7,199	6,100-6,800	●
Quadra 900 4/160	5,864	8,499	7,200-7,500	●
Quadra 900 4/400	6,347	9,199	7,800-8,700	●
Classic II 2/40	1,424	1,899	1,550-1,700	●
Classic II 4/80	1,799	2,399	1,950-2,100	●

**Doesn't include additional volume discounts or quarterly rebates for infrastructure or marketing co-op. **Estimated; prices will vary based on availability and competition.*

"We were promised some machines for the announcement date, but we have received nothing," said Mark Stanoch, vice president of sales for Transnet Corp., a chain of resellers based in Somerville, N.J. "I've got our Mac user group coming in and they're expecting to at least see some of the new products. It's a little embarrassing. If it were a corporate presentation, I'd be totally embarrassed."

Since Apple claims to be building lots of machines, big corporate accounts expect that they should get the first ones off the line, Asche said. "The hard thing is, not only can't we give it to them now, we don't know when they can get it," he said.

According to resellers and their customers, Apple's window of opportunity to convince buyers, especially DOS buyers, that the PowerBooks are worthwhile investments is closing fast.

"[Having] no PowerBooks is going to hurt Apple more than it's going to hurt us," said Tim Yancy, Macintosh product manager for Southern California Edison in Rosemead, Calif. "The announcement will hold people's attention for a couple of weeks, but if this [shortage] stretches out too long, they stand a chance of losing the attention of DOS users." □

PowerBook accessories in short supply

Even users who manage to buy one of the scarce Mac PowerBooks still face a daunting quest. Critical PowerBook accessories, including external chargers and batteries, are not available and in some cases not expected for months. The shortages center on two areas:

▸ **Batteries.** While few dealers have PowerBooks, even fewer have spare batteries. The original Mac Portable's bulky battery provided six or more hours of operating time, but with the PowerBooks' compact two- to three-hour batteries, users will need a second battery to make it through a workday.

Apple is the only supplier of the $99 batteries; no alternative sources are available. Although Apple uses standard batteries from its suppliers, it encases them in a custom plastic mold to match the shape and look of the PowerBooks.

▸ **Chargers.** While the PowerBook 140/170 external charger is now available, according to Apple, the $159 PowerBook 100 external charger isn't due until January. Although users can charge a battery inside the PowerBook itself, the relatively long charging time (three hours) makes it difficult to charge more than one battery overnight without switching.

PowerBook 100 users might be able to turn elsewhere, however. St. Louis Park, Minn.-based Lind Electronics Corp. last week shipped PowerBook battery-compatible external chargers along with other power-adapter products (see MacWEEK, Oct. 22). — *By Raines Cohen*

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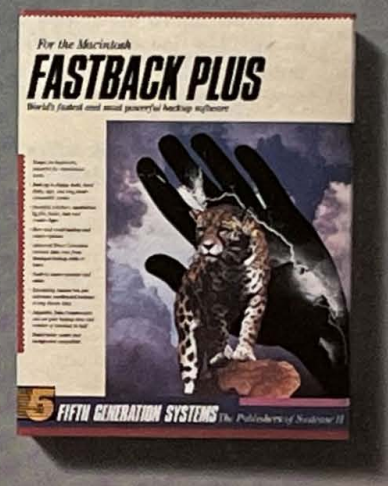

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FIFTH GENERATION SYSTEMS, INC

Overview

From Page 1

age market: a drive with two actuators, each with its own set of read-write heads. The dual-actuator design, combined with a spindle speed of 4,500 rpm and queuing of up to 32 concurrent requests for data, make the 510-Mbyte Chinook drive ideal for transaction-intensive applications, such as file servers and client-server databases.

▸ **Apple USA** last week announced a toll-free repair hot line, (800) 767-2775, for users experiencing PowerBook hardware problems (see story, Page 46). For problems covered by the one-year warranty, Apple will pick up PowerBooks, deliver them to Apple's Central Repair Center for service, and then send them back to an address of the user's choice. The company's goal is to turn around all repairs within 72 hours, said Kurt Yeager, manager of strategic planning in Apple's service department. □

Dan Farber, Neil McManus and Henry Norr contributed to this report.

PHOTOGRAPHS BY HANK DELESPINASSE, 1991

IBM's massive OS/2 booth, right, failed to tempt many Comdex attendees to stray from their new love: Microsoft Windows.

Apple's booth included a demonstration of a Mac-controlled picture phone, below, developed by PictureTel.

Reaction

From Page 1

Fox said he doesn't believe that DOS and Windows users will be attracted to the PowerBooks. "DOS and Windows users are accustomed to their programs, and many use vertical applications that aren't available on other platforms," he said.

Apple and industry analysts predict that the middle-of-the-line PowerBook 140 will garner the majority of sales, but some users believe the low-end PowerBook will dominate sales.

"The more I look at the [PowerBook] 140 and 170, the more I admire the 100," said Donald Buffamanti, CEO of Infonaut Inc. in East Amherst, N.Y.

"After using the 100, the only thing I would want is a larger hard drive. Apple really did its homework on these products," Buffamanti said.

While attracting less attention, the Quadra 700 and 900 still drew crowds of users primarily interested in high-end desktop publishing and multimedia. Macintosh IIcx and IIci users were especially pleased with the Quadra 700 upgrade Apple is offering for their older machines.

"I found a company that liquidated all their Macs, and I came in and bought 10 IIcx systems from them," said Ralph Whitmore, vice president of Global Equipment Ltd., an equipment wholesaler in Beverly Hills, Calif.

"I bought the machines to resell them, but I may upgrade all of them to the Quadra 700 instead," Whitmore said.

Of the new offerings, the Classic II appeared to draw the least attention from volume buyers on the show floor.

Many buyers complained that the machine is too slow for their purposes, with no expansion capabilities.

"For large businesses, I don't see the Classic II as being as significant a system as the Quadras," said Ernie Mariette, principal consultant for Mariette Systems International, a San Mateo, Calif.-based consulting firm that helped Apple design the network for its Comdex booth.

"I think the size of the screen makes it impractical for most corporate users," Mariette said. "Also, people want color more and more. But for home use, it'll be a great system." □

Pen

From Page 1

compatible systems at the show.

▸ **Momenta Corp.** of Mountain View, Calif., which announced the Momenta Computer earlier this month, showed its custom-pen operating system and pentop system. The $4,995 system, which can use a keyboard as well as a pen for input, will be the first to be distributed through national dealer chains. The company said it received $10 million of venture capital in its third round of funding.

▸ **PI Systems Corp.** of Portland, Ore., showed Infolio, the only Motorola 680x0-based pen system so far. The low-cost ($2,000) systems, due early next year, use custom software and are intended for vertical applications.

▸ **Microsoft Corp.** of Redmond, Wash., showed Windows for Pen Computing, running on notebooks from Samsung, Dauphin Technology and other vendors. The OS, due to ship early next year, stresses handwriting recognition more than PenPoint does.

▸ **IBM** of Armonk, N.Y., had a number of pen-based technology demonstrations in its booth. In one, an OS/2-based trader's workstation application, developed by the Chicago Mercantile Exchange with help from IBM, tracked sales on the trading floor, creating a paper trail. Rather than recognize traders' scrawls as they're entered, the system saves them as "digital ink" (see story below) for later reading. The system eventually will be used for all trading, not just trading-floor transactions.

▸ **GRiD Systems Corp.** of Fremont, Calif., the pen-computing pioneer, showed systems that run PenPoint, Windows for Pen Computing, and GRiD's own PenRight software. GRiD introduced pen systems two years ago but until recently has marketed them mainly for vertical applications such as traffic-citation writing.

GRiDPAD RF, a new pen-based system, will include a wireless spread-spectrum Novell-compatible LAN. The system, due to ship early next year, is aimed at real-time, mobile data-collection applications. □

GRiD's pen-based systems, demonstrated at Comdex last week, now give users a choice of operating systems: PenPoint, Windows for Pen Computing or PenRight.

Hollywood

From Page 1

ago this would happen, we called IBM and said, 'Let's talk.' "

Claris will begin shipping Hollywood in its existing packaging this week for $499; IBM will continue to handle technical support for the time being, via a toll-free number already familiar to large corporate accounts. Claris packaging for the product is expected by year-end.

Claris said it will work closely with PSI to create an interface consistent with the rest of its product family as well as to develop a version for the Mac and, eventually, for OS/2 Version 2.0. Eilers declined to say when Hollywood for the Mac and OS/2 will ship.

Tim Bajarin, executive vice president of Creative Strategies Research International of Santa Clara, Calif., said it makes sense for Claris to enter the Windows market. "A serious software company has to be multiplatform. If it continued to be Mac-only, the best Claris could expect is to be a $150 million-a-year company."

"Claris had planned to enter the Windows market with a version of FileMaker Pro, but not until the first quarter of 1992," said Rob Kelly, associate editor of Software Industry Bulletin in Stamford, Conn. "Now, Claris is literally catapulting into the Windows market, since it will begin selling Hollywood [this] week."

Eilers said Claris' arrangement with PSI is "the first of what will be many partnerships with other developers around the world. We are beginning to fulfill our promise to deliver a cross-platform family of application software."

But some analysts wondered whether Claris can make it in the more-cutthroat Windows market. "I don't know if Claris has what it takes to compete," Kelly said. "Microsoft is doing well with PowerPoint, Lotus [Development Corp.] will bring out Freelance for Windows next month, and Software Publishers Corp. will introduce Harvard Graphics for Windows in February.

"Claris must come out with a new version of Hollywood, with an improved interface, before Harvard Graphics reaches the market," Kelly said. □

Digital Ink standard may let users share scribbles

Some of the most interesting developments in pen-based technology may be taking place behind the scenes. Sources said several system-software developers including Apple, Microsoft Corp. and GO Corp. have engaged in preliminary talks about an interplatform exchange of handwriting data.

The companies reportedly have met over the past few weeks to discuss standardization of data types to allow for interchange of user-entered handwriting, known as "digital ink." Applications use user-entered handwriting to annotate documents, faxes and the like.

Although many pen-based operating systems include handwriting-recognition abilities, not all scribbles are worth attempting to recognize. "We're not trying to simulate a typewriter," said Robert Frankston, programmer emeritus for Slate Corp., a pen-based software developer. "On a form, recognition is important; it adds value for further processing. However, for quick notes, users are satisfied just looking at the ink."

Industry executives are de-emphasizing handwriting-recognition functions to avoid disappointing users when they finally get their hands on pen-based systems early next year.

"There's enormous value to be able to get free-form scribbles and handwriting and everything else into the computer, even if you don't have the computer recognize it," said Matt Kursh, president of San Mateo, Calif.-based Ink Development Corp., which is creating pen software.

Pen-based systems will spawn a new genre of software: ink-based applications. Examples include ink-oriented messaging systems, note-taking applications and document markup programs, he said.

If standards emerge to let different platforms share digital ink, users will be able to pass notes more easily. "Interchange of ink among not only new platforms, but also among existing [non-pen-based] system will let users manipulate and sort messages and documents created on pen-oriented systems," said Jerry Kaplan, president of GO.

Kaplan would not confirm the ink talks, other than to say that GO has "always maintained a dialog with Apple." Reportedly, Apple is considering using components of PenPoint, such as its handwriting-recognition technology, for a future pen-based Mac. — *By Raines Cohen*

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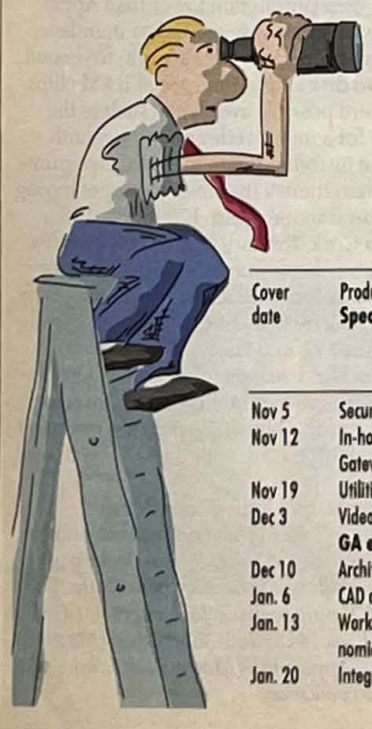

Look ahead.

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Nov 12	In-house programming Gateways extra	Oct 31	Oct 29
Nov 19	Utilities	Nov 7	Nov 5
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Excoriating the Gates of hell

If you're going to make a product introduction at a Comdex show, last week's extravaganza in Las Vegas was an excellent choice. The new Macs, especially the PowerBooks, drew a lot of attention in what was otherwise generally conceded to be a fairly lackluster event. For Apple, though, the event was anything but run-of-the-mill, especially Monday, when, according to the most reliable sources, Apple booked more orders than any other single day in its history. And all this without the cost and bother of the usual flashy bicoastal product rollout that has become an Apple trademark in past years.

Record-breaking orders such as these are likely to make life a little easier for Apple's worldwide sales force, which, forsaking Hawaii, met last week at San Francisco's exclusive Civic Center for the usual fun-filled session of corporate boosterism. New this year was a surprisingly strong dose of Microsoft bashing. With IBM now an ally, Apple apparently has settled on Windows as the single most identifiable source of wickedness in the world. For the purposes of rallying the troops, evil was personified in the specter of Bill Gates.

Of course, such rabid displays of partisanship would be unseemly in an environment as public as Comdex. There, a modicum of decorum was necessary during the introduction as Apple and Microsoft booths were well nigh contiguous. Closeness didn't cause Apple to feel compelled to demonstrate any of the several well-selling (and shipping) Microsoft Mac applications, however. Instead of Word and Excel, the crowd was treated to demonstrations of Lotus 1-2-3 Mac, due to ship in a matter of weeks, and Claris MacWrite Pro, due to ship sometime. Honest.

Getting the Word. Microsoft's antidote to this rather obvious snub by IBM's newest nonaggression pact partner was to demonstrate its idea of what new Mac word processing technology is all about. Most would probably just call it a sneak preview of Word 5.0, which is what the product is expected to be called when it is formally introduced at the Microsoft Word Users' Conference in Seattle beginning Nov. 13.

We buy it. Perhaps still stinging from failures to get other products on the market in a timely manner, Claris has signed a deal that should help it add badly needed color support to HyperCard a lot sooner than anyone had expected it to. Sources tell the Knife that the company last week completed negotiations with Motion Works for the rights to the color technology used in ADDmotion, a sophisticated 24-bit-color paint, interactive animation and sound external for HyperCard.

And, for all you cross-platform multimedia buffs out there, the Knife reports that Motion Works is also negotiating with IBM for a deal concerning its PROmotion animation technology. This little piece of technology will allow the same format animation document to be run on a Mac, Windows or even OS/2.

When Iacocca dreams. Given that the only real innovation in the PowerBooks (other than a novel trackball and a nice implementation of a commonly available screen) is in the software, and the software is finished, what possible excuse is there for Apple's inability to meet demand? This is a question that Apple is unlikely to answer, but several factors conspired to keep production lower than Apple would have liked. Some are rather mundane, such as tight supplies of the 40-Mbyte version of the hard disk and of the special RAM chips. Others were possibly avoidable, such as the necessity for a minor redesign just a month before the introduction to meet FCC requirements. Then there's the small matter of having to move production of the 170 for the U.S. market to Cork, Ireland, to avoid the punitive active-matrix display tariff. And don't forget that Apple factories are already running pretty much at capacity to meet the rebate-inspired demand for LCs and IIsi machines.

And the No. 1 reason why Apple isn't able to meet demand for the PowerBooks is that some things, like Louisiana politics, just don't work out right. □

Unless you, too, have a secret cash-generating tell-all in the works, there's no need to wait for the court system to let you off before spilling the beans to the Knife. The MacWEEK mug transactions begin at (415) 243-3500, fax (415) 243-3650, MCI (MactheKnife), AppleLink (MacWEEK) and CompuServe/Zmac.

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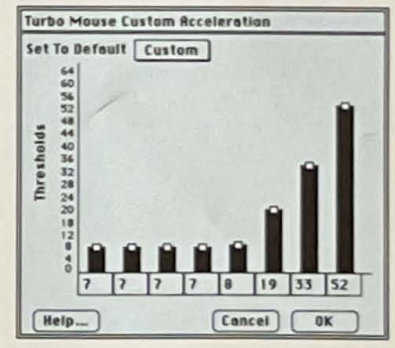

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